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**Volume II**

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(NASA-TM-X-73507) EFFECT OF AIR TEMPERATURE  
AND RELATIVE HUMIDITY AT VARIOUS FUEL-AIR  
RATIOS ON EXHAUST EMISSIONS ON A PER-MODE  
BASIS OF AN AVCO LYCOMING O-320 DIAD LIGHT  
AIRCRAFT ENGINE. VOLUME 2: INDIVIDUAL DATA G3/07

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EFFECT OF AIR TEMPERATURE AND RELATIVE HUMIDITY AT  
VARIOUS FUEL-AIR RATIOS ON EXHAUST EMISSIONS  
ON A PER-MODE BASIS OF AN AVCO LYCOMING  
O-320 DIAD LIGHT AIRCRAFT ENGINE:  
PRELIMINARY DATA REPORT  
VOLUME II - INDIVIDUAL DATA POINTS

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16. Abstract A carburetted four-cylinder air-cooled 0-320 DIAD Lycoming aircraft engine was tested to establish the effects of air temperature and humidity at various fuel-air ratios on the exhaust emissions on a per-mode basis. The test conditions included carburetor lean-out at air temperatures of 50, 59, 80, and 100 F at relative humidities of 0, 30, 60, and 80 percent. Temperature-humidity effects at the higher values of air temperature and relative humidity tested indicated that the HC and CO emissions increased significantly, while the NO <sub>x</sub> emissions decreased. Even at a fixed fuel-air ratio, the HC emissions increase and the NO <sub>x</sub> emissions decrease at the higher values of air temperature and humidity. The report is divided in two volumes: Volume I contains the results and plotted data, and Volume II contains the data taken at each of the individual test points.			
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Appendix B

The data from individual test points which make up this report were taken on a carbureted, four-cylinder, O-320 DIAD Lycoming light-aircraft engine. These data points represent all of the environmental and engine conditions tested in the individual seven modes in the EPA emissions test cycle as discussed in Volume I. The test data presented herein, representing over 800 data points (readings), were taken at air temperatures of 50°, 59°, 80°, and 100° F at values of 0, 30, 60, and 80 percent relative humidity over a range of fuel-air ratios from 0.06 to 0.113. The data points included in this Appendix are all of those for which the exhaust emissions are plotted on a per-mode basis in Volume I of this report. Data point reading number listings are included in tabular form for each series of test conditions and the data symbols which were used for the curves plotted in Volume I. Because of the large number of data points, the data points are arranged numerically by reading number for easy reference.

TABLE I

## LISTING OF READING NUMBERS FOR

TEMP. 50°F REL HUM. 0, 30, 60, 80%

IDLE	TAXI	TAKE-OFF	CLIMB	APPROACH	IDLE	TAXI	TAKE-OFF	CLIMB	APPROACH
2406	2403	2431	2433	2434	2412	2405	2435	2436	2437
2413	2409	2438	2439	2441	2414	2411	2442	2443	2444
2418	2415	2445	2446	2447	2424	2417	2448	2449	2450
2425	2420	2452	2453	2454	2426	2423	2455	2456	2457
2430	2427	2458	2459	2460	2464	2429	2461	2462	2463
2477	2465	2494	2495	2496	2487	2469	2498	2499	3561
2488	2490	2501	2502	3562	2489	3577	2504	2505	3563
3576	3578	2507	2512	3564	3579	3581	2511	2515	3565
3583	3582	2514	2519	3566	3584	3587	2517	2522	3567
3585	3588	2521	2525	3568	3586	3591	2524	3637	3569
3589	3592	3639	3641	3570	3593	3609	3640	3644	3571
3594	3610	3643	3647	3638	3605	3613	3649	3650	3642
3607	3614	3652	3653	3645	3608	3620	3655	3656	3648
3611	3623	3658	3659	3651	3618	3626	3661	3662	3654
3619	3627	3664	3665	3657	3624	3630	3667	3669	3660
3625	3631	3668	3672	3663	3628	3634	3671	3675	3655
3629	3635	3674	3678	3670	3632	0	3680	3681	3673
3633	0	3686	3684	3676	0	0	3689	3687	3679
0	0	3692	3690	3685	0	0	3695	3693	3688
0	0	0	3696	3691	0	0	0	0	3694
0	0	0	0	3697					

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REL. HUMIDITY

TEMP. DEG.F	8	38	68	88
55	8	1	0	0
59	1	0	0	0
65	2	0	0	0
88	3	0	0	0
100	3	0	0	0

OUT OF RANGE

TABLE II

## LISTING OF READING NUMBERS FOR

TEMP. 59°F REL HUM. 0, 30, 60, 80%

IDLE	TAXI	TAKE-OFF	CLIMB	APPROACH	IDLE	TAXI	TAKE-OFF	CLIMB	APPROACH
2703	2704	2724	2725	2726	2706	2705	2728	2729	2730
2702	2710	2731	2732	2733	2711	2714	2735	2736	2737
2712	2717	2738	2739	2740	3541	2718	2741	2742	2743
3542	2721	2744	2745	2746	3543	2722	2747	2748	2749
3545	2750	2752	2751	2752	3549	2759	2753	2754	2755
3550	2763	2778	2779	2780	3551	2764	2781	2782	2783
2757	2767	2784	2786	2787	2761	2770	2785	2789	2790
2755	2771	2789	2792	2793	2766	2774	2791	2795	2796
2768	2775	2794	2798	2799	2769	2858	2797	2801	2802
2773	2859	2800	2804	2805	2776	2862	2803	2807	2808
2777	2863	2806	2810	2811	2857	2866	2812	2813	2814
2860	2867	2810	2820	2822	2861	2870	2823	2824	2825
2864	2871	2825	2836	2837	2865	2874	2838	2839	2840
2868	2875	2841	2842	2843	2869	2960	2844	2845	2846
2872	2961	2848	2849	2847	2873	2965	2850	2851	2852
2876	2967	2877	3552	2870	2959	2971	2880	3553	2892
2963	2972	2883	3554	2885	2964	2975	2886	3555	2889
2968	2976	2890	3556	2892	2970	2980	2893	3557	2895
2973	2981	2896	2913	2898	2974	0	2899	2916	2901
2978	0	2902	2920	2904	2979	0	2905	2923	2908
2982	0	2915	2926	2914	0	0	2918	2929	2917
0	0	2919	2932	2921	0	0	2922	2936	2924
0	0	2925	2942	2927	0	0	2928	2945	2930
0	0	2931	0	2934	0	0	2935	0	2940
0	0	2941	0	2943	0	0	2944	0	2946

## REL. HUMIDITY

TEMP. DEG. F	8	38	68	88
53	0	0	0	+
59	1	0	0	X
68	2	0	0	Y
108	3	0	0	Z

OUT OF RANGE -

TABLE III

## LISTING OF READING NUMBERS FOR

TEMP. 80°F REL HUM. 0, 30, 60, 80%

IDLE	TAXI	TAKE-OFF	CLIMB	APPROACH	IDLE	TAXI	TAKE-OFF	CLIMB	APPROACH
3293	3291	3260	3261	3262	3295	3292	3263	3264	3265
3296	3297	3266	3267	3268	3300	3298	3269	3270	3274
3301	3302	3272 2	3273 2	3277 2	3304	3303	3275 2	3276 2	3280 2
3305	3306	3278	3279	3283	3308	3307	3281	3282	3286
3309	3311	3284	3285	3287	3310 2	3312 2	3287	3288	3378
3313 2	3315 2	3376	3377	3381	3314	3316	3379	3380	3384
3320	3319	3382	3383	3387	3321	3323	3385	3386	3390
3322	3324	3388 Δ	3389 Δ	3393 Δ	3326	3327	3391 Δ	3392 Δ	3396 Δ
3328	3329	3394	3395	3399	3331	3330	3397	3398	3402
3332	3333	3400	3401	3405	3335	3334	3403	3404	3499
3343	3342	3497	3498	3502	3346	3343	3500	3501	3505
3346	3344	3503	3504	3508	3349	3347	3506	3507	3511
3350	3352	3509	3510	3514	3351	3353	3512	3513	3517
3356 Δ	3354 Δ	3515	3516	3520	3358 Δ	3355	3518	3519	3523
3372	3361	3521	3525	3527	3374	3362 Δ	3524	3525	3469
3406	3363	3467	3468	3472	3410	3364	3470	3471	3475
3411	3407	3473	3474	3478	3414	3408	3476 Y	3477	3481 Y
3419	3412	3479 Y	3480 Y	3484 Y	3420	3413	3482	3483 Y	3487
3422	3417	3485	3486	3490	3425	3421	3488	3489	3493
3431	3423	3491	3492	3496	3432	3424	0	3495	0
3433	3427	0	0	0	3437	3429	0	0	0
3439	3434	0	0	0	3442	3435	0	0	0
3446	3440	0	0	0	3447	3441	0	0	0
3451	3444	0	0	0	3452	3445	0	0	0
3453 Y	3449	0	0	0	3457 Y	3450	0	0	0
3458	3455 Y	0	0	0	3462	3456 Y	0	0	0
3463	3459	0	0	0	3466	3460	0	0	0
0	3464	0	0	0	0	3465	0	0	0

## REL. HUMIDITY

TEMP. DEG. F	8	38	68	88
53	8	0	0	+
59	1	0	0	X
68	2	0	0	Y
108	3	0	0	Z

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TABLE IV

## LISTING OF READING NUMBERS FOR

TEMP. 100°F REL. HUM. 0, 30, 60, 80%

IDLE	TAXI	TAKE-OFF	CLIMB	APPROACH	IDLE	TAXI	TAKE-OFF	CLIMB	APPROACH
2983	2984	3010	3529	3013	2988	2985	3014	3531	3016
2990	2991	3017	3532	3019	2993	2992	3020	3533	3023
2995 3	2996 3	3024 3	3534 3	3026 3	2998 3	2997 3	3027 3	3536 3	3031 3
2999	3001	3032	3537	3034	3002	3004	3035	3538	3037
3005	3006	3038	3122	3040	3008	3017	3041	3124	3043
3154	3155	3121	3127	3125	3157	3156	3123	3130	3128
3158	3159	3126	3133	3131	3161	3160	3129	3136 *	3134
3162 *	3163 *	3132 *	3139 *	3137 *	3165 *	3164 *	3135 *	3142 *	3140 *
3166 *	3167	3138	3145 *	3143	3169	3168	3141	3151	3146
3170	3171	3144	3153	3149	3173	3172	3147	3215	3152
3176	3177	3150	3216	3211	3183	3180	3209	3218	3214
3184	3185	3212	3223	3219	3190	3187	3217	3227 *	3222
3192 *	3188 *	3220 *	3232 *	3226 *	3195 *	3193 *	3224 *	3236	3231 *
3198	3194 *	3229 *	3237	3235	3201	3199	3233	3077	3238
3202	3200	3239	3080	3244	3205	3203	3240	3087	3251
3053	3204	3247	3088	3078	3056	3054	3076	3097	3081
3057	3055	3079	3100 Z	3084	3060	3058	3082	3106 Z	3089
3061 Z	3059	3085	3108	3098	3064 Z	3062 Z	3090 Z	3109	3101 Z
3066 Z	3063 Z	3099 Z	3111	3104	3069	3067	3102	3112	3107
3071	3068	3105	0	3113	3075	3072	3110	0	3116
0	3073	0	0	0					

REL. HUMIDITY

TEMP. DEG. F	58	59	60	61	62	63	64
	8	1	2	3	4	5	6
	+	X	Y	Z			

OUT OF RANGE

TABLE V

## LISTING OF READING NUMBERS FOR

TEMP: 50, 59, 80, 100°F REL. HUM. 0%

IDLE	TAXI	TAKE-OFF	CLIMB	APPROACH	IDLE	TAXI	TAKE-OFF	CLIMB	APPROACH
2406	2403	2431	2433	2434	2412	2405	2435	2435	2437
2413	2409	2438	2439	2441	2414	2411	2442	2443	2444
2418	2415	2445	2446	2447	2424	2417	2448	2449	2450
2425	2420	2452	2453	2454	2426	2423	2455	2456	2457
2430	2427	2458	2459	2460	2703	2429	2461	2462	2463
2706	2704	2724	2725	2726	2708	2705	2728	2729	2730
2711	2710	2731	2732	2733	2712	2714	2735	2736	2737
2741	2717	2739	2739	2740	3542	2718	2741	2742	2743
3543	2721	2744	2745	2746	3545	2722	2747	2748	2749
3549	3291	2750	2751	2752	3550	3292	2753	2754	2755
3551	3297	3263	3261	3262	3293	3298	3263	3264	3265
3295	3302	3266	3267	3268	3296	3303	3269	3270	3274
3300	3306	3272	3273	3277	3301	3307	3275	3276	3280
3304	3311	3278	3279	3280	3305	3312	3281	3282	3296
3308	3315	3284	3285	3287	3309	3316	3287	3288	3013
3310	3319	3010	3529	3016	3313	3323	3014	3531	3019
3314	3324	3017	3532	3023	3320	3327	3020	3533	3026
3321	3329	3024	3534	3031	3322	3330	3027	3536	3034
3326	3333	3032	3537	3037	3328	3334	3035	3538	3040
3331	2984	3038	0	3043	3332	2985	3041	0	0
3335	2991	0	0	0	2983	2992	0	0	0
2988	2996	0	0	0	2990	2997	0	0	0
2993	3001	0	0	0	2995	3004	0	0	0
2998	3004	0	0	0	2999	3007	0	0	0
3002	0	0	0	0	3005	0	0	0	0
3008	0	0	0	0					

TEMP. DEG.F	REL. HUMIDITY			
	50	59	80	100
	0	1	2	3
	4	5	6	7
	8	9	0	1
OUT OF RANGE				

TABLE VI

## LISTING OF READING NUMBERS FOR

TEMP. 50, 59, 80, 100°F REL. HUM. 30%

IDLE	TAXI	TAKE-OFF	CLIMB	APPROACH	IDLE	TAXI	TAKE-OFF	CLIMB	APPROACH
2464	2465	2494	2495	2495	2477	2467	2498	2499	3561
2487	2469	2501	2502	3562	2488	2472	2504	2505	3563
2489	2478	2507	2508	3564	3345	2490	2511	2512	3565
3346	3342	2514	2515	3565	3348	3343	2517	2519	3567
3349	3344	2521	2522	3568	3350	3347	2524	2525	3569
3351	3352	3376	3377	3570	3356	3353	3379	3380	3571
3358	3354	3382	3383	3378	3372	3355	3385	3386	3381
3374	3361	3388	3389	3384	3406	3362	3391	3392	3387
3410	3363	3394	3395	3390	3411	3364	3397	3398	3393
3414	3407	3400	3401	3396	2757	3408	3403	3404	3399
2761	3412	2778	2779	3402	2765	3413	2781	2782	3405
2766	2758	2784	2786	2780	2768	2759	2785	2789	2783
2769	2763	2788	2792	2787	2773	2764	2791	2795	2790
2776	2767	2794	2798	2793	2777	2770	2797	2801	2796
3154	2771	2800	2804	2799	3157	2774	2803	2807	2802
3158	2775	2806	3122	2805	3161	3155	3121	3124	2808
3162	3156	3123	3127	3125	3165	3159	3126	3130	3128
3166	3160	3129	3133	3131	3169	3163	3132	3136	3134
3170	3164	3135	3139	3137	3173	3167	3138	3142	3140
0	3168	3141	3145	3143	0	3171	3144	3151	3146
0	3172	3147	3153	3149	0	0	3150	0	3152

## REL. HUMIDITY

TEMP. DEG. F	50	59	80	100	
50	8	8	8	8	+
59	1	1	1	1	x
80	2	2	2	2	y
100	3	3	3	3	z

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TABLE VII

## LISTING OF READING NUMBERS FOR

TEMP. 50, 59, 80, 100°F REL. HUM. 60%

IDLE	TAXI	TAKE-OFF	CLIMB	APPROACH	IDLE	TAXI	TAKE-OFF	CLIMB	APPROACH
3578	3577	3639	3637	3638	3579	3578	3640	3641	3642
3583	3581	3643	3644	3645	3584	3582	3649	3647	3648
3585	3587	3652	3650	3651	3586	3588	3655	3653	3654
3589	3591	3658	3656	3657	3593	3592	3661	3659	3660
359	3609	3664	3662	3663	3605	3610	3667	3665	3666
3607	2858	2812	2810	2811	3606	2859	2819	2813	2814
2857	2862	2823	2820	2822	2860	2863	2835	2824	2825
2861	2866	2838	2836	2837	2864	2867	2841	2839	2840
2865	2870	2844	2842	2843	2868	2871	2848	2845	2846
2869	2874	2850	2849	2847	2872	2875	2877	2851	2852
2873	3417	2880	3552	2870	2876	3421	2883	3553	2852
3419	3423	2884	3554	2885	3420	3424	2890	3555	2889
3422	3427	2892	3556	2892	3425	3429	2895	3557	2895
3431	3434	2899	3498	2898	3432	3435	2902	3501	2901
3433	3440	2905	3504	2904	3437	3441	3497	3507	2908
3439	3177	3500	3510	3499	3442	3180	3503	3513	3502
3176	3185	3506	3516	3505	3183	3187	3509	3519	3508
3184	3188	3512	3525	3511	3190	3193	3515	3526	3514
3192	3194	3518	3515	3517	3195	3199	3521	3521	3520
3198	3200	3524	3218	3523	3201	3203	3200	3223	3527
3202	3204	3212	3227	3211	3205	0	3217	3232	3214
0	0	3220	3236	3219	0	0	3224	3237	3222
0	0	3225	0	3225	0	0	3233	0	3231
0	0	3239	0	3235	0	0	3240	0	3238
0	0	3247	0	3244	0	0	0	0	3251

TEMP. DEG.F	REL. HUMIDITY			
	8	38	68	88
	53	8	0	+
	59	1	0	X
	88	2	Δ	Y
100	3	Δ	Δ	Z
OUT OF RANGE				

TABLE VIII

## LISTING OF READING NUMBERS FOR

TEMP. 50, 59, 80, 100°F REL. HUM. 80%

IDLE	TAXI	TAKE-OFF	CLIMB	APPROACH	IDLE	TAXI	TAKE-OFF	CLIMB	APPROACH
3611	3613	3668	3669	3670	3618	3614	3671	3672	3673
3619	3620	3674	3675	3676	3624	3623	3680	3678	3679
3625	3626	3686	3681	3685	3628	3627	3689	3684	3688
3629	3630	3692	3687	3691	3632	3631	3695	3690	3694
3633	3634	2915	3693	3697	2959	3635	2918	3696	2914
2963	2960	2919	2913	2917	2964	2961	2922	2916	2921
2968	2965	2925	2920	2924	2970	2967	2928	2923	2927
2973	2971	2931	2926	2930	2974	2972	2935	2929	2934
2978	2975	2941	2932	2940	2979	2976	2944	2936	2943
2982	2980	3467	2942	2946	3446	2981	3470	2945	3459
3447	3444	3473	3468	3472	3451	3445	3476	3471	3455
3452	3449	3479	3474	3478	3453	3450	3482	3477	3481
3457	3455	3485	3480	3484	3458	3456	3488	3483	3487
3462	3459	3491	3486	3490	3463	3460	3076	3489	3493
3466	3464	3079	3492	3496	3053	3465	3082	3495	3078
3056	3054	3085	3077	3081	3057	3055	3090	3080	3084
3060	3058	3099	3087	3089	3061	3059	3102	3088	3098
3064	3062	3105	3097	3101	3066	3063	3110	3100	3104
3069	3067	0	3106	3107	3071	3068	0	3108	3113
3075	3072	0	3109	3116	0	3073	0	3111	0
0	0	0	3112	0					

REL. HUMIDITY

50	8	38	68	88
59	1	0	+	X
80	2	Δ	+	Y
100	3	W	+	Z

OUT OF RANGE

TABLE IX

## LISTING OF READING NUMBERS FOR

TEMP. 50°F REL. HUM. 0%

TEMP. 100°F REL. HUM. 80%

IDLE	TAXI	TAKE-OFF	CLIMB	APPROACH	IDLE	TAXI	TAKE-OFF	CLIMB	APPROACH
2406	2403	2431	2433	2434	2412	2405	2435	2436	2437
2413	2409	2438	2439	2441	2414	2411	2442	2443	2444
2418 $\phi$	2415 $\phi$	2445 $\phi$	2446 $\phi$	2447 $\phi$	2424 $\phi$	2417 $\phi$	2448 $\phi$	2449 $\phi$	2450 $\phi$
2425	2420	2452	2453	2454	2426	2423	2455	2456	2457
2430	2427	2458	2459	2460	3053	2429	2461	2462	2463
3056	3054	3076	3077	3078	3057	3055	3079	3080	3081
3060	3058	3082	3087	3084	3061 $\Sigma$	3059 $\Sigma$	3085 $\Sigma$	3088	3089
3064 $\Sigma$	3062 $\Sigma$	3090 $\Sigma$	3097 $\Sigma$	3098 $\Sigma$	3066	3063	3099	3100 $\Sigma$	3101 $\Sigma$
3069	3067	3102	3106	3104	3071	3068	3105	3108	3107
3075	3072	3110	3109	3113	0	3073	0	3111	3116
0	0	0	3112	0					

TEMP. DEG. F	REL. HUMIDITY				
	8	38	68	88	
	58	8	◇	□	+
	59	1	○	◊	X
	88	2	△	●	Y
	100	3	※	▲	Z
	OUT OF RANGE				

NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDEII REC 03/25/76 15:56:21.631 FAC SEX15 PGM C003 R06 2403

LEANOUT 25 BTDC I & T 50 DEG HUM = 0 % NEUTRAL MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.080 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP 52.820	PRESS 29.080	CFM 18.986	DRY FLOW 56.524	VAPOR FLOW 0.010353	PRESS TOTAL 14.291
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COMB. FUEL	TEMP 77.900	PRESS 5.6928	DENSITY 44.703	TURBO FLOW 13.852	FLOW TRON 8.3978	FPIP 6.1122
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COOLING AIR	TEMP 58.750	UDEL-HOOD -0.010517	DEL-HOOD 0.81477	FLOW 2171.8	REL-HUM 1.3895	DEW-POINT -24.416
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REL-HUM	1 1.3895	2 10.101	HUMIDITY 0.83756	% H2O VAPOR 0.019233	CORRECTED HP 1.1558
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ENG. COND.	F/A DRY 0.097058	F/A WET 0.097046	EQU. RATIO 1.4486	RPM-1 1202.3	RPM-2 1201.8	TORQUE 5.0838	BHP 1.1638
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WET CORRECTION FACTOR = 0.87249 EXHAUST MOLE. WT. = 26.421 EXHAUST DENSITY = 0.068412 EXHAUST FLOW RATE = 1387.7

MEASURED CONC.	PART PER MILLION WET		CO DRY 11.0840	PER CENT	
	HC PPM 8589.5	NOX PPM 21.081		CO2 DRY 8.2035	C2 DRY 0.33273
CORRECTED CONC. TO WET BASIS					
			9.6705	7.1575	0.29031

	HC	NOX	CO
EMISSION RATE	0.42790	0.0034812	9.7425
EMISSION MASS/MODE	0.078448	0.00063821	1.7861
EMISSION MASS/RATED HP	0.00049030	3.9888E-06	0.011163
MODE EMIS./STD. CYCLE %	25.805	0.26592	26.579

CAL. FUEL AIR RATIO = 0.096758 MEAS. FUEL AIR RATIO = 0.097058 DIFF MEAS. & CAL. F/A PERCENT = -0.30933

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	249.60	265.17	253.11	268.21

EXT GAS TEMP DEG.F	FXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	595.17	-322.79	-454.00	850.79	660.14	653.14

ENGINE OIL	FOILT 139.32	SOILT 144.68	OILP 56.434	MANIFOLD PRESSURE = 8.2034
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DYNO COND.	TORQUE 7.8344	RPM 1193.8	CYL. BACK PRESSURE = 29.239
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INDUCTION AIR	IAIRT1 51.719	IAIRT2 52.820	TAIRT1 93.426	TAIRT2 47.767
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ORIFICE AIR	TEMP 86.655	DELTA P 2.0659	ORFP 54.399	FLOW 1998.0
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CELL TEMP. = 77.679 HEATER TEMP = 85.850 COOLER TEMP = 42.791

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NASA-LEWIS		PRELIMINARY DATA		03/25/76	CADDEII	REC 03/25/76 16:06:06.657	FAC SEX15	PGM C003	RDG 2405
LEANOUT 25 BTDC I & T 50 DEG HUM = 0 % NEUTRAL				MODE = 2.0000		NO. SCANS = 5			
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.080		RATED HP. = 160.00		HC RATIO = 2.1250	
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL			
	54.184	29.076	19.297	87.990	0.011639	14.283			
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP			
	79.755	5.6874	44.654	13.623	8.3168	6.1065			
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT			
	60.709	-0.0071957	0.75108	2188.6	1.4616	-23.591			
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP				
	1.4616	32.763	0.92597	0.021263	1.7697				
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP		
	0.094520	0.094507	1.4107	1199.4	1199.7	7.7924	1.7796		
WET CORRECTION FACTOR = 0.86575		EXHAUST MOLE. WT. = 26.595		EXHAUST DENSITY = 0.068862		EXHAUST FLOW RATE = 1398.7			
MEASURED CONC.	PART PER MILLION WET		PER CENT						
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY				
	7631.8	23.092	11.032	8.1823	0.31779				
CORRECTED CONC. TO WET BASIS			9.5507	7.0838	0.27513				
		HC	NOX	CO					
EMISSION RATE	0.38322		0.0038437	9.6985					
EMISSION MASS/MODE	0.070257		0.00070467	1.7781					
EMISSION MASS/RATED HP	0.00043911		4.4042E-06	0.011113					
MODE EMIS./STD. CYCLE %	23.111		0.29361	26.459					
CAL. FUEL AIR RATIO = 0.096302		MEAS. FUEL AIR RATIO = 0.094520		DIFF MEAS. & CAL. F/A PERCENT = 1.8855					
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4					
	256.14	271.41	258.81	272.22					
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2			
	1218.6	-185.16	-454.00	821.00	650.47	646.99			
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 8.2482					
	140.70	146.54	56.106						
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.230						
	6.6247	1189.7							
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2					
	53.075	54.184	82.340	47.580					
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW					
	88.482	1.0274	54.535	1422.0					
CELL TEMP. = 79.508		HEATED TEMP = 87.030							

NASA-LEWIS		PRELIMINARY DATA		03/25/76	CADDEII	REC 03/25/76 16:25:00.752		FAC SEX15	PGM C003	RDG 2406	
LEANOUT 25 BTDC I & T 50 DEG HUM = 0 % NEUTRAL				MODE = 1.0000		NO. SCANS = 5					
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.090		RATED HP. = 160.00		HC RATIO = 2.1250			
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL					
	53.366	29.089	11.933	54.540	0.010585	14.284					
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP					
	79.172	5.7327	44.670	3.9616	5.0495	6.0999					
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT					
	57.194	-0.0033211	0.86791	2208.2	2.2094	-19.541					
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP						
	2.2094	26.319	1.3585	0.031197	0.51015						
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP				
	0.092584	0.092566	1.3818	592.68	588.18	4.5504	0.51351				
WET CORRECTION FACTOR = 0.87528		EXHAUST MOLE. WT. = 26.731		EXHAUST DENSITY = 0.069214		EXHAUST FLOW RATE = 861.10					
MEASURED CONC.	PART PER MILLION WET		PER CENT								
	HC PPM	NOX PPM	CO DRY	CO2 DRY	CO2 DRY						
	28867.	3.3903	9.67640	6.9476	3.1296						
CORRECTED CONC. TO WET BASIS			8.4596	6.0811	2.7393						
EMISSION RATE	HC	NOX	CO								
	0.89240	0.00034741	5.2948								
EMISSION MASS/MODE	0.014873	5.7902E-06	0.088247								
EMISSION MASS/RATED HP	9.2959E-05	3.6188E-08	0.00055154								
MODE FMIS./STD. CYCLE %	4.8926	0.0024126	1.3132								
CAL. FUEL AIR RATIO = 0.096161	MEAS. FUEL AIR RATIO = 0.092584		DIFF MEAS. & CAL. F/A PERCENT = 3.8633								
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4							
	248.22	263.43	245.10	259.34							
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2					
	1003.4	-39.226	-454.00	813.49	753.95	758.90					
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 11.722							
	142.19	155.04	46.989								
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.061								
	5.3429	576.18									
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2							
	51.910	53.366	154.55	46.340							
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW							
	88.517	2.9498	54.501	2359.5							
CILL TEMP. = 79.508	HEATER TEMP = 87.425		COOLER TEMP = 41.694								

NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDEII REC 03/25/76 16:46:35.687 FAC SEX15 PGM C003 RDG 2409

LEANOUT 25 BTDC I & T 50 DEG HUM = 0 % 3/4 T CLOSED MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.090 RATED <sup>0.25</sup> = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	52.456	29.084	17.766	81.345	0.017832	14.286

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	80.628	5.7135	44.532	11.401	6.8587	6.1017

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	58.967	-0.011901	0.87206	2164.7	2.5807	-17.941

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	2.5807	0.27203	1.5345	0.035238	1.2171

ENG. CONJ.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.084316	0.084298	1.2585	1201.4	1201.3	5.3589	1.2259

WET CORRECTION FACTOR = 0.85722 EXHAUST MOLE. WT. = 27.342 EXHAUST DENSITY = 0.070795 EXHAUST FLOW RATE = 1246.2

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	4038.1	48.983	8.20430	9.7873	0.21068
CORRECTED CONC. TO WET BASIS			7.0329	8.3899	0.18060

	HC	NOX	CO
EMISSION RATE	0.18065	0.0072638	6.3627
EMISSION MASS/MODE	0.033119	0.0013317	1.1665
EMISSION MASS/RATED HP	0.00020700	8.3231E-06	0.0072906
MODE EMIS./STD. CYCLE %	10.895	0.55487	17.359

CAL. FUEL AIR RATIO = 0.086745 MEAS. FUEL AIR RATIO = 0.084316 DIFF MEAS. & CAL. F/A PERCENT = 2.8810

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	246.56	261.34	253.16	263.54

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1264.8	-454.00	-454.00	-1.5274	601.31	596.72

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 7.6822
	139.17	145.21	57.102	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.163
	6.6679	1196.3	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	51.263	52.456	160.55	45.517

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	89.146	2.9448	54.600	2356.3

CELL TEMP. = 79.305 HEATER TEMP = 87.861 COOLER TEMP = 60.300

NASA-LEWIS		PRELIMINARY DATA		03/25/76	CADDEII	REC 03/25/76 17:00:48.593		FAC SEX15	PGM C003	RDG 2411
LEANOUT 25 BTDC I & T 50 DEG HUM = 0 % 3/4 T CLOSED MODE = 2.0000 NO. SCANS = 5										
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.100			RATED HP. = 160.00		HC RATIO = 2.1250		
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL				
	50.598	29.096	17.538	80.447	0.019401	14.295				
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP				
	79.473	5.7198	44.562	11.909	6.7777	6.0963				
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT				
	58.171	-0.013561	0.78599	2156.3	3.0427	-16.586				
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP					
	3.0427	9.0009	1.6882	0.038766	1.2199					
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP			
	0.084250	0.084230	1.2575	1198.9	1200.2	5.3922	1.2309			
WET CORRECTION FACTOR = 0.85678			EXHAUST MOLE. WT. = 27.347		EXHAUST DENSITY = 0.070808			EXHAUST FLOW RATE = 1232.1		
MEASURED CONC.	PART PER MILLION WET		PER CENT							
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY					
	3867.6	49.027	8.1843	9.9323	0.19306					
CORRECTED CONC. TO WET BASIS			7.0121	8.5097	0.16541					
EMISSION RATE	HC	NOX	CO							
	0.17107	0.0071884	6.2725							
EMISSION MASS/MODE	0.031364	0.0013179	1.1500							
EMISSION MASS/RATED HP	0.00019602	8.2367E-06	0.0071872							
MODE EMIS./STD. CYCLE %	10.317	0.54911	17.112							
CAL. FUEL AIR RATIO = 0.086461		MEAS. FUEL AIR RATIO = 0.084250			DIFF MEAS. & CAL. F/A PERCENT = 2.6244					
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4						
	258.05	273.02	262.30	277.68						
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2				
	1423.6	-251.97	-454.00	816.97	652.75	650.86				
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 7.7156						
	145.98	153.13	55.978							
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.291							
	3.2115	1195.8								
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2						
	49.375	50.598	145.90	44.884						
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW						
	88.325	2.9758	54.631	2369.9						
CELL TEMP. = 78.483		HEATER TEMP = 88.006			COOLER TEMP = 39.762					



NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDEII REC 03/25/76 17:05:48.896 FAC SEX15 PGM C005 RDG 2412

LEANOUT 25 BTDC I & T 50 DEG HUM = 0 % 3/4 T CLOSED MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.100 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	51.974	29.096	9.4000	43.081	0.011121	14.291

CCMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	80.267	5.7789	44.541	3.9607	3.9124	6.1275

CCCLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	59.455	-0.029336	0.85985	2075.9	3.0942	-15.586

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	3.0942	8.0908	1.8070	0.041496	0.42491

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.090815	0.090792	1.3554	606.60	607.62	3.7087	0.42835

WET CORRECTION FACTOR = 0.89382 EXHAUST MOLE. WT. = 26.858 EXHAUST DENSITY = 0.069541 EXHAUST FLOW RATE = 675.92

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	19646.	13.391	7.65810	8.6016	2.4586	
CORRECTED CONC. TO WET BASIS			6.8539	7.6883	2.1976	

	HC	NOX	CO
EMISSION RATE	0.47674	0.0010771	3.3633
EMISSION MASS/MODE	0.0079457	1.7952E-05	0.056055
EMISSION MASS/RATED HP	4.9661E-05	1.1220E-07	0.00035035
MODE EMIS./STD. CYCLE %	2.6137	0.0074800	0.83416

CAL. FUEL AIR RATIO = 0.086887 MEAS. FUEL AIR RATIO = 0.090815 DIFF MEAS. & CAL. F/A PERCENT = -4.3248

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	268.17	283.43	267.47	286.97

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1240.7	-237.57	-454.00	712.74	744.40	744.66

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 10.913
	151.04	162.17	46.633	

DYNO COND.	TORQUE	RPM	CYL BACK PRESSURE = 29.176
	4.6157	605.94	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	50.279	51.974	124.82	45.145

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	89.111	2.9407	54.601	2354.8

CELL TEMP. = 78.969 HEATER TEMP = 88.041

NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDEII REC 03/25/76 17:14:36.527 FAC SEX15 PGM C003 RDG 2413

LEANOUT 25 BTDC I & T 50 DEG HUM = 0 % 3/4 T CLOSED MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.100 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	53.611	29.097	9.7633	44.771	0.011837	14.291

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	81.157	5.7708	44.518	3.9621	3.9814	6.1119

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT
	60.114	-0.031827	0.80675	2063.2	2.9838	-15.226

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	2.9838	37.840	1.8507	0.042498	0.55923

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.088928	0.088904	1.3273	616.80	615.78	4.7921	0.56279

WET CORRECTION FA. DP = 0.87983 EXHAUST MOLE. WT. = 26.995 EXHAUST DENSITY = 0.069897 EXHAUST FLOW RATE = 697.66

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	15858.	16.821	7.65200	9.1884	1.6342
CORRECTED CONC. TO WET BASIS			6.7325	8.0842	1.4378

	HC	NOX	CO
EMISSION RATE	0.39719	0.0013965	3.4100
EMISSION MASS/MODE	0.0066199	2.3275E-05	0.056833
EMISSION MASS/RATED HP	4.1374E-05	1.4547E-07	0.00035521
MODE FMIS./STD. CYCLE %	2.1776	0.0096977	0.84573

CAL. FUEL AIR RATIO = 0.087338 MEAS. FUEL AIR RATIO = 0.088928 DIFF MEAS. & CAL. F/A PERCENT = -1.7872

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	265.33	280.50	259.92	277.08

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1120.7	-454.00	-454.00	788.95	727.36	727.07

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 10.792
	141.63	151.20	47.581	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.208
	4.8677	607.38	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	52.010	53.611	109.16	44.854

ORIFICE ATR	TEMP	DELTA P	ORFP	FLOW
	90.489	2.9572	54.590	2358.1

CELL TEMP. = 80.407 HEATER TEMP = 89.075 COOLFR TEMP = 39.399

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LEANOUT 25 BTDC I & T 50 DEG HUM = 0 % 1 1/2 T CLOSE MODE = 1.0000 NO. SCANS = 5

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	50.999	29.107	11.305	51.871	0.013886	14.296

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	57.755	-0.022417	0.80619	2111.2	3.3276	-15.031

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.067385	0.067367	1.0358	621.00	620.58	3.8087	0.45035

PART PER MILLION WET			PER CENT		
MEASURED CONC.	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	14170.	39.033	2.0146	10.889	3.6811
CORRECTED CONC. TO WET BASIS			1.7837	9.6405	3.2591

CAL. FUEL AIR RATIO = 0.067298      MEAS. FUEL AIR RATIO = 0.067385      DIFF MEAS. & CAL. F/A PERCENT = -0.12897

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1277.0	-454.00	-454.00	961.77	718.22	716.64

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.051
	4.1116	624.30	

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	88.159	3.0001	54.417	2379.5

CELL TEMP. = 78.280      HEATER TEMP = 88.048

NASA-LEWIS		PRELIMINARY DATA		03/25/76		CADDEII		REC 03/25/76 17:25:00.252		FAC SEX15		PGM C003		RDG 2415	
LEANOUT 25 BTDC I & T 50 DEG HUM = 0 % 1 1/2 T CLOSE MODE = 2.0000 NO. SCANS = 5															
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 29.110				RATED HP. = 160.00		HC RATIO = 2.1250			
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		50.954		29.109		17.855		81.971		0.020277		14.299			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		79.967		5.7261		44.549		11.325		6.3186		6.1068			
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		57.737		-0.024078		0.85380		2102.8		3.0809		-16.211			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		3.0809		0.44204		1.7315		0.039762		1.0679					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.077083		0.077064		1.1505		1201.5		1202.2		4.7088		1.0772	
WET CORRECTION FACTOR = 0.86290				EXHAUST MILE. WT. = 27.917				EXHAUST DENSITY = 0.072283				EXHAUST FLOW RATE = 1221.7			
MEASURED CONC.		PART PER MILLION WET				PER CENT									
		HC PPM		NOX PPM		CO DRY		CO2 DRY		C2 DRY					
		2050.3		66.725		4.70250		11.753		0.13417					
CORRECTED CONC. TO WET BASIS						4.0578		10.141		0.11578					
EMISSION RATE		HC		NOX		CO									
		0.089926		0.0097008		3.5992									
EMISSION MASS/MODE		0.016486		0.0017785		0.65985									
EMISSION MASS/RATED HP		0.00010304		1.1115E-05		0.0041240									
MODE EMIS./STD. CYCLE %		5.4232		0.74103		9.8191									
CAL. FUEL AIR RATIO = 0.077464				MEAS. FUEL AIR RATIO = 0.077083				DIFF MEAS. & CAL. F/A PERCENT = 0.49418							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		246.26		269.85		258.58		271.82							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		1685.8		-454.00		-454.00		997.28		662.77		658.21			
ENGINE OIL		EOILT		SOILT		OILP		MANIFOLD PRESSURE = 7.8703							
		140.03		146.46		56.178									
DYNO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.104									
		6.6031		1212.8											
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
		49.686		50.954		123.07		44.587							
ORIFICE AIR		TEMP		DEL TAP		ORFP		FLOW							
		88.805		2.9663		54.458		2365.2							
CELL TEMP. = 79.022				HEATER TEMP = 88.054				COOL FR TEMP = 39.172							

NASA-LEWIS	PRELIMINARY DATA	03/25/76	CADDEII	REC 03/25/76 17:32:47.709	FAC SEX15	PGM C003	RDG 2417
LEANOUT 25 BTDC I & T 50 DEG HUM = 0 % 1 1/2 T CLOSE MODE = 2.0300				NO. SCANS = 5			
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.110		RATED HP.= 160.00		HC RATIO= 2.1250
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	51.965	29.113	17.553	80.581	0.020724	14.297	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	81.580	5.7279	44.507	3.9577	6.1896	6.1053	
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	59.292	-0.020480	0.73811	2121.1	3.0850	-15.636	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	3.0850	23.436	1.8002	0.041340	1.0412		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.076812	0.076792	1.1465	1197.9	1197.8	4.6005	1.0493
WET CORRECTION F.		TOR = 0.86456		EXHAUST MOLE. WT. = 27.939		EXHAUST DENSITY = 0.072341	
						EXHAUST FLOW RATE = 1199.8	
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	1940.3	66.759	4.42730	11.860	0.11351		
CORRECTED CONC. TO WET BASIS			3.8277	10.254	0.098138		
EMISSION RATE	HC	NOX	CO				
	0.083571	0.0095312	3.3340				
EMISSION MASS/MODE	0.015321	0.0017474	0.61123				
EMISSION MASS/RATED HP	9.5758E-05	1.0921E-05	0.0038202				
MODE EMIS./STD. CYCLE %	5.0399	0.72807	9.0957				
CAL. FUEL AIR RATIO = 0.076893		MEAS. FUEL AIR RATIO = 0.076812		DIFF MEAS. & CAL. F/A PERCENT = 0.10483			
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	255.81	279.86	266.95	284.88			
FXT GAS TEMP DEG.F	FXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	1107.3	-454.00	-454.00	1041.9	701.28	696.10	
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 7.9070			
	146.03	152.98	55.962				
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.134				
	-0.41044	1199.0					
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2			
	50.616	51.965	133.39	44.538			
CRIFICE AIR	TEMP	DELTAP	ORFP	FLOW			
	90.010	2.8373	54.553	2313.0			
CELL TEMP. = 80.381		HEATER TEMP = 88.020		COOLER TEMP = 30.037			

NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDEII REC 03/25/76 17:35:47.843 FAC SEX15 PGM C003 RDG 2418

LEANOUT 25 BTDC I & T 50 DEG HUM = 0 % 1 1/2 T CLOSE MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BARMETRIC PRESSURE = 29.110 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	52.875	29.115	10.739	49.311	0.013479	14.295

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	80.928	5.7840	44.624	3.9575	3.2223	6.1020

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	60.312	-0.022694	0.84466	2109.8	3.1706	-14.711

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	3.1706	0.32003	1.9135	0.043940	0.090434

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.065347	0.065329	0.97533	591.72	590.16	0.80841	0.091080

WET CORRECTION FAC.  $\bar{R}$  = 0.88197 EXHAUST MOLE. WT. = 28.760 EXHAUST DENSITY = 0.074466 EXHAUST FLOW RATE = 705.65

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	18041.	31.803	1.08270	10.584	3.6813	
CORRECTED CONC. TO WET BASIS			0.95488	9.3344	3.2468	

EMISSION RATE	HC	NOX,	CO
	0.45705	0.0026706	0.48919
EMISSION MASS/MODE	0.0076175	4.4510E-05	0.0081531
EMISSION MASS/RATED HP	4.7609E-05	2.7818E-07	5.0957E-05
MODE EMIS./STD. CYCLE %	2.5057	0.018546	0.12133

CAL. FUEL AIR PATIO = 0.067473 MEAS. FUEL AIR RATIO = 0.065347 DIFF MEAS. & CAL. F/A PERCENT = 3.2535

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	269.90	300.61	288.01	309.92

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1689.3	-454.00	-454.00	922.07	750.03	749.09

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 12.103
	147.14	159.05	46.565	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.191
	0.47525	588.90	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	51.218	52.875	104.09	44.350

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	90.420	2.9603	54.506	2359.5

CELL TEMP. = 80.628 HEATER TEMP = 88.013 COOLER TEMP = 38.954

NASA-LEWIS		PRELIMINARY DATA		03/25/76		CADDEII		REC 03/25/76 17:45:25.755		FAC SEX15		PGM C003		RDG 2420	
LEANOUT 25 BTDC I & T 50 DEG HUM = 0 X 3/4 T OPEN															
MODE = 2.0000															
NO. SCANS = 5															
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PPESSURE = 29.110				RATED HP.= 160.00		HC RATIO= 2.1250			
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		50.069		29.108		19.515		89.706		0.021775		14.300			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		79.596		5.6646		44.659		13.969		9.1509		6.0988			
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		57.855		-0.020757		0.81505		2119.7		3.1246		-16.486			
REL-HUM		1		2		HUMIDITY		X H2O VAPOR		CORRECTED HP					
		3.1246		0.37004		1.6992		0.039019		1.4254					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.10201		0.10199		1.5225		1201.2		1202.4		6.2923		1.4391	
WET CORRECTION FACTOR = 0.87698				EXHAUST MOLE. WT. = 26.095				EXHAUST DENSITY = 0.067567				EXHAUST FLOW RATE = 1463.4			
MEASURED CONC.		PART PER MILLION WET				PER CENT									
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		11271.		15.117		12.0640		7.5080		0.39104					
CORRECTED CONC. TO WET BASIS						10.580		6.5844		0.34293					
EMISSION RATE		HC		NOX		CO									
		0.59214		0.0026325		11.240									
EMISSION MASS/MODE		0.10856		0.00048262		2.0607									
EMISSION MASS/RATED HP		0.00067849		3.0164E-06		0.012879									
MODE EMIS./STD. CYCLE X		35.710		0.20109		30.665									
CAL. FUEL AIR RATIO = 0.10151				MEAS. FUEL AIR RATIO = 0.10201				DIFF MEAS. & CAL. F/A PERCENT = -0.49309							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		253.44		272.97		257.43		276.61							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		1286.7		-454.00		-454.00		1057.3		698.54		692.54			
ENGINE OIL		EOILT		SOILT		OILP		MANIFOLD PRESSURE = 8.4755							
		147.70		155.06		55.574									
DYNO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.070									
		7.5247		1197.5											
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
		48.782		50.069		101.62		44.007							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		88.666		2.9759		54.580		2369.2							
CELL TEMP. = 79.058				HEATER TEMP = 87.992				C00155							

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NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDEII REC 03/25/76 17:56:22.139 FAC SEX15 PGM C003 RDG 2423

LEANOUT 25 BTDC I & T 50 DEG HUM = 0 % 3/4 T OPEN MCDE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.120 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP 51.655	PRESS 29.117	CFM 20.315	DRY FLOW 93.386	VAPOR FLOW 0.022649	PRESS TOTAL 14.303
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COMB. FUEL	TEMP 80.945	PRESS 5.6634	DENSITY 44.623	TURBO FLOW 14.440	FLOW TRON 9.2829	FPIP 6.0903
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COOLING AIR	TEMP 59.184	UDEL-HOOD -0.018266	DEL-HOOD 0.80370	FLOW 2132.4	REL-HUM 2.9441	DEW-POINT -16.495
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REL-HUM	1 2.9441	2 0.29203	HUMIDITY 1.6977	% H2O VAPOR 0.038985	CORRECTED HP 1.4052
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ENG. COND.	F/A DRY 0.099403	F/A WET 0.099379	EQU. RATIO 1.4836	RPM-1 1206.2	RPM-2 1206.8	TORQUE 6.1673	BHP 1.4165
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WET CORRECTION FACTOR = 0.86657 EXHAUST MOLE. WT. = 26.265 EXHAUST DENSITY = 0.068006 EXHAUST FLOW RATE = 1510.0

MEASURED CONC.	PART PER MILLION WET HC PPM 11940.	NOX PPM 13.829	CO DRY 12.1330	PER CENT CO2 DRY 7.4546	O2 DRY 0.38500
CORRECTED CONC. TO WFT BASIS			10.514	6.4599	0.33449

EMISSION RATE	HC 0.64728	NOX 0.0024851	CO 11.526
EMISSION MASS/MODE	0.11867	0.00045560	2.1132
EMISSION MASS/RATED HP	0.00074168	2.8475E-06	0.013207
MODE EMISS./STD. CYCLE %	39.036	0.18983	31.446

CAL. FUEL AIR RATIO = 0.10226 MEAS. FUEL AIR RATIO = 0.099403 DIFF. MEAS. & CAL. F/A PERCENT = 2.8779

CYL TEMP DEG.F	CYL-1 247.12	CYL-2 265.46	CYL-3 249.16	CYL-4 266.89
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EXT GAS TEMP DEG.F	EXT-1 961.77	EXT-2 -454.00	EXT-3 -454.00	EXT-4 954.99	SEXT-1 682.81	SEXT-2 676.16
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ENGINE OIL	EOILT 143.91	SOILT 150.62	OILP 56.078	MANIFOLD PRESSURE = 8.4706
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DYNO COND.	TORQUE 9.1089	RPM 1207.1	CYL. BACK PRESSURE = 29.191
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INDUCTION AIR	IAIRT1 50.397	IAIRT2 51.655	TAIRT1 119.20	TAIRT2 44.074
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ORIFICE AIR	TEMP 90.106	DELTAP 2.9804	ORFP 54.512	FLOW 2367.8
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CELL TEMP. = 80.752 HEATER TEMP = 87.895 COOLER TEMP = 38.564

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NASA-LEWIS		PRELIMINARY DATA		03/25/76		CADDEII		REC 03/25/76 17:59:43.962		FAC SEX15		PGM C003		RDG 2424	
LEANOUT 25 BTDC I & T 50 DEG HUM = 0 % 3/4 T OPEN															
MODE = 1.0000															
NO. SCANS = 5															
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 29.120				RATED HP. = 160.00				HC RATIO = 2.1250	
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		50.124		29.117		12.685		58.346		0.015461		14.300			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		78.837		5.7072		44.678		3.9692		6.2496		6.0999			
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		57.882		-0.022417		0.87566		2111.2		3.4038		-15.181			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		3.4038		0.39004		1.8549		0.042595		0.44514					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.10711		0.10708		1.5987		606.54		604.38		3.9921		0.44948	
WET CORRECTION FACTOR = 0.90653				EXHAUST MOLE. WT. = 25.778				EXHAUST DENSITY = 0.066745				EXHAUST FLOW RATE = 968.02			
MEASURED CONC.		PART PER MILLION WET				CO DRY		PER CENT		O2 DRY					
		HC PPM				NOX PPM		5.8811		3.5042					
		38202.				3.9074		10.7000		3.1767					
CORRECTED CONC. TO WET BASIS						9.7000		5.3314							
EMISSION RATE		HC		NOX		CO									
		1.3276		0.00045011		6.8170									
EMISSION MASS/MODE		0.022127		7.5018E-06		0.11362									
EMISSION MASS/RATED HP		0.00013829		4.6887E-08		0.00071011									
MODE FMIS./STD. CYCLE %		7.2786		0.0031258		1.6907									
CAL. FUEL AIR RATIO = 0.10381				MEAS. FUEL AIR RATIO = 0.10711				DIFF MEAS. & CAL. F/A PERCENT = -3.0843							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		259.02		280.80		262.39		278.80							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		875.24		-454.00		-454.00		847.29		734.63		732.58			
ENGINE OIL		FOILT		SOILT		OILP		MANIFOLD PRESSURE = 12.422							
		145.58		156.26		47.057									
DYNO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.258									
		2.6427		596.10											
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
		48.599		50.124		81.829		43.678							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		88.325		2.9858		54.591		2373.7							
CELL TEMP. = 78.678				HEATER TEMP = 87.847				COOLER TEMP = 38.455							

NASA-LEWIS	PRELIMINARY DATA	03/25/76	CADDEII	REC 03/25/76 18:03:13.813	FAC SEX15	PGM C003	RDG 2425
LEANOUT 25 BTDC I & T 50 DEG HUM = 0 % 3/4 T OPEN MODE = 1.0000 NO. SCANS = 5							
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.120		RATED HP. = 160.00		HC RATIO = 2.1250
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	49.366	29.116	12.244	56.324	0.014521	14.299	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	77.944	5.7087	44.702	3.9678	6.1116	6.1017	
COOLING AIR	TEMP	UNEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT	
	57.991	-0.019927	0.80730	2123.9	3.4063	-15.596	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP			
	3.4063	16.212	1.8047	0.041442		0.33460	
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10851	0.10848	1.6195	595.20	595.62	2.9836	0.33813
WET CORRECTION FAC R = 0.90802		EXHAUST MOLE. WT. = 25.695		EXHAUST DENSITY = 0.066529		EXHAUST FLOW RATE = 938.69	
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	38470.	3.8044	10.9140	5.7642	3.4619		
CORRECTED CONC. TO WET BASIS			9.9104	5.2340	3.1435		
EMISSION RATE	HC	NOX	CO				
	1.2964	0.00042496	6.7538				
EMISSION MASS/MODE	0.021607	7.0827E-06	0.11256				
EMISSION MASS/RATED HP	0.00013504	4.4267E-08	0.00070352				
MODE EMIS./STD. CYCLE %	7.1076	0.0029511	1.6750				
CAL. FUEL AIR RATIO = 0.10491		MEAS. FUEL AIR RATIO = 0.10851		DIFF MEAS. & CAL. F/A PERCENT = -3.3165			
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	291.33	314.05	292.52	309.25			
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	824.85	-454.00	-454.00	917.35	800.52	802.17	
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 12.542			
	148.00	159.60	46.377				
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.118				
	-0.15121	590.46					
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2			
	47.822	49.366	99.583	43.589			
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW			
	87.740	3.0267	54.588	2390.5			
CELL TEMP. = 78.527		HEATER TEMP = 87.785		COOLFR TEMP = 38.609			

NASA-LEWIS	PRELIMINARY DATA	03/25/76	CADDE11	REC 03/25/76 18:08:35.151	FAC SEX15	PGM C003	RDG 2426
LEANOUT 25 BTDC I & T 50 DEG HUM = 0 % 1 1/2 T OPEN MODE = 1.0000				NO. SCANS = 5			
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.120		RATED HP. = 160.00		HC RATIO = 2.1250
COMB. AIR	TEMP 50.397	PRESS 29.118	CFM 13.806	DRY FLOW 63.426	VAPOR FLOW 0.016481	PRESS TOTAL 14.301	
COMB. FUEL	TEMP 78.607	PRESS 5.6859	DENSITY 44.584	TURBO FLOW 8.9228	FLOW TRON 7.0327	FPIP 6.0921	
COOLING AIR	TEMP 59.256	UDEL-HOOD -0.018543	DEL-HOOD 0.82695	FLOW 2131.0	REL-HUM 3.3043	DEW-POINT -15.476	
REL-HUM	1 3.3043	2 18.894	HUMIDITY 1.8190	% H2O VAPOR 0.041769	CORRECTED HP 0.51748		
ENG. COND.	F/A DRY 0.11088	F/A WET 0.11085	EQU. RATIO 1.6549	RPM-1 592.08	RPM-2 595.32	TORQUE 4.6338	BHP 0.52239
WET CORRECTION FACTOR = 0.91590		EXHAUST MOLE. WT. = 25.556		EXHAUST DENSITY = 0.066170		EXHAUST FLOW RATE = 1065.1	
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM 42916.	NOX PPM 4.0724	CO DRY 11.0860	CO2 DRY 5.2691	O2 DRY 4.0383		
CORRECTED CONC. TO WET BASIS			10.154	4.8260	3.6987		
EMISSION RATE	HC 1.6409	NOX 0.00051614	CO 7.8511				
EMISSION MASS/MODE	0.027349	8.6024E-06	0.13085				
EMISSION MASS/RATED HP	0.00017093	5.3765E-08	0.00081783				
MODE EMIS./STD. CYCLE %	8.9963	0.0035843	1.9472				
CAL. FUEL AIR RATIO = 0.10635		MEAS. FUEL AIR RATIO = 0.11088		DIFF MEAS. & CAL. F/A PERCENT = -4.0833			
CYL TEMP DEG.F	CYL-1 289.89	CYL-2 309.54	CYL-3 295.31	CYL-4 309.81			
EXT GAS TEMP DEG.F	FXT-1 1329.9	FXT-2 -454.00	FXT-3 -317.66	FXT-4 972.27	SEXT-1 739.11	SEXT-2 733.17	
ENGINE OIL	EOILT 152.89	SOILT 164.68	OILP 46.161	MANIFOLD PRESSURE = 13.449			
DYNO COND.	TORQUE 13.797	RPM 590.10	CYL. BACK PRESSURE = 29.305				
INDUCTION AIR	IAIRT1 48.873	IAIRT2 50.397	TAIRT1 113.67	TAIRT2 44.327			
ORIFICE AIR	TEMP 88.736	DELTAP 2.9765	ORFP 54.701	FLOW 2369.2			
CELL TEMP. = 79.199		HEATER TEMP = 87.750		COOLER TEMP = 38.328			

NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDEII REC 03/25/75 18:12:38.948 FAC SEX15 PG4 C003 RDG 2427

LEANOUT 25 BTDC I & T 50 DEG HUM = 0 % 1 1/2 T OPEN MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.120 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	50.507	29.120	21.072	96.914	0.024084	14.301

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	80.073	5.6487	44.646	14.982	10.276	6.0813

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	58.596	-0.027952	0.76717	2083.0	3.1473	-16.141

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	3.1473	15.486	1.7396	0.039946	1.4067

ENG. CC/D.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10603	0.10601	1.5826	1199.2	1199.7	6.2173	1.4196

WET CORRECTION FACTOR = 0.88028 EXHAUST MOLE. WT. = 25.844 EXHAUST DENSITY = 0.066915 EXHAUST FLOW RATE = 1602.2

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	14247.	9.0619	12.5680	7.0889	0.42936
CORRECTED CONC. TO WET BASIS			11.152	6.2402	0.37796

	HC	NOX	CO
EMISSION RATE	0.81951	0.0017278	12.972
EMISSION MASS/MODE	0.15024	0.00031676	2.3782
EMISSION MASS/RATED HP	0.00093902	1.9798E-06	0.014803
MODE EMIS./STD. CYCLE %	49.422	0.13198	35.389

CAL. FUEL AIR RATIO = 0.10531 MEAS. FUEL AIR RATIO = 0.10603 DIFF MEAS. & CAL. F/A PERCENT = -0.67715

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	251.99	267.85	255.71	274.16

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	822.16	-454.00	-391.16	1112.1	629.29	616.00

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 8.7581
	148.23	156.06	56.594	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.207
	10.347	1196.8	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	49.238	50.507	116.98	43.772

ORIFICE AIR	TEMP	DELTAP	ORIF	FLOW
	89.163	2.9701	54.517	2365.9

CELL TEMP. = 80.090 HEATER TEMP = 87.646 COOLER TEMP = 38.355

NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDEII REC 03/25/76 18:19:14.560 FAC SEX15 PGM C003 RDG 2429

LEANOUT 25 BTDC I & T 50 DEG HUM = 0 % 1 1/2 T OPEN MCDE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.120 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	51.546	29.119	20.891	96.109	0.023829	14.305

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	81.007	5.6463	44.622	15.263	10.231	6.0834

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	60.015	-0.026292	0.72593	2091.5	3.0223	-16.171

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	3.0223	19.600	1.7355	0.039854	0.84315

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10645	0.10643	1.5888	1198.3	1197.4	3.7254	0.85000

WET CORRECTION FACTOR = 0.88185 EXHAUST MOLE. WT. = 25.818 EXHAUST DENSITY = 0.066849 EXHAUST FLOW RATE = 1591.1

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	NOX PPM	CO DRY
14184.	9.1019	12.6550
CORRECTED CONC. TO WET BASIS		CO DRY
		6.2250

	HC	NOX	CO
EMISSION RATE	0.81022	0.0017234	12.891
EMISSION MASS/MODE	0.14854	0.00031595	2.3633
EMISSION MASS/RATED HP	0.00092838	1.9747E-06	0.014771
MODE EMIS./STD. CYCLE %	48.862	0.13165	35.169

CAL. FUEL AIR RATIO = 0.10533 MEAS. FUEL AIR RATIO = 0.10645 DIFF MEAS. & CAL. F/A PERCENT = -1.0583

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	255.98	277.95	261.38	282.03

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	884.92	-454.00	-274.49	1104.4	637.39	625.45

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	151.39	158.81	54.801	8.8575

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	0.80648	1212.4	29.096

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	50.270	51.546	102.30	43.751

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	90.245	2.9906	54.598	2371.4

CELL TEMP. = 81.007 HEATER TEMP = 87.605 COOLER TEMP = 38.309

NASA-LEWIS	PRELIMINARY DATA	03/25/76	CADDEII	REC 03/25/76 18:22:47.001	FAC SEX15	PGM C003	RDG 2430
LEANOUT 25 BTDC I & T 50 DEG HUM = 0 % 1 1/2 T OPEN				MODE = 1.0000	NO. SCANS = 5		
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.120		RATED HP. = 160.00		HC RATIO = 2.1250
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	49.302	29.120	13.869	63.727	0.017116	14.300	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	77.537	5.6916	44.712	3.9722	7.0357	6.0921	
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	58.280	-0.014668	0.76856	2150.7	3.5571	-14.976	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR		CORRECTED HP	
	3.5571	33.677	1.8801	0.043173		0.43897	
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.11040	0.11037	1.6478	606.42	604.08	3.8420	0.44362
WET CORRECTION FACTOR = 0.90304			EXHAUST MOLE. WT. = 25.583		EXHAUST DENSITY = 0.066241		EXHAUST FLOW RATE = 1068.5
MEASURED CONC.	PART PER MILLION WET		PER CENT		29		
	HC PPM	NOX PPM	CO DRY	CO2 DRY			
	41683.	5.5125	11.4720	5.4143			
CORRECTED CONC. TO WFT BASIS			CO DRY	O2 DRY			
			10.360	4.8893	3.1023		
EMISSION RATE	HC	NOX	CO				
	1.5989	0.00070093	8.0367				
EMISSION MASS/MODE	0.026649	1.1682E-05	0.13395				
EMISSION MASS/RATED HP	0.00016656	7.3014E-08	0.00083716				
MODE FMIS./STD. CYCLE %	8.7661	0.0048676	1.9932				
CAL. FUEL AIR RATIO = 0.10924		MEAS. FUEL AIR RATIO = 0.11040		DIFF MEAS. & CAL. F/A PERCENT = -1.0539			
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	292.08	316.77	298.37	319.44			
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	898.95	-319.96	-135.27	968.53	717.75	712.06	
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 13.154			
	155.90	168.31	45.949				
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.238				
	9.3537	601.62					
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2			
	47.739	49.302	103.84	44.151			
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW			
	87.521	2.9892	54.569	2376.7			
CELL TEMP. = 78.360		HEATER TEMP = 87.556		COOLER TEMP = 38.073			

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NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDEII REC 03/25/76 18:31:08.330 FAC SEX15 PGM C003 RDG 2431

LEANOUT 25 BTDC TO CL APP 50 DEG HUM = 0 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.120 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	46.943	29.142	207.95	989.65	0.25662	14.782

COMB. FUFL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	75.793	5.3195	44.758	82.482	80.582	5.9544

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	50.808	3.0537	3.8360	10057.	3.8787	-15.006

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	3.8787	35.694	1.8151	0.041682	157.57

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.081425	0.081404	1.2153	2708.5	2709.4	300.44	154.94

WET CORRECTION FACTOR = 0.85577 EXHAUST MILE. WT. = 27.567 EXHAUST DENSITY = 0.071378 EXHAUST FLOW RATE = 14997.

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM NOX PPM CO DRY CO2 DRY C2 DRY	
	1571.4 412.10 7.41160 10.298 0.060046	
CORRECTED CONC. TO WET BASIS		6.3426 8.8130 0.051386

	HC	NOX	CO
EMISSION RATE	0.84603	0.73547	69.059
EMISSION MASS/MODE	0.0042301	0.0036774	0.34530
EMISSION MASS/RATED HP	2.6438E-05	2.2983E-05	0.0021581
MODE EMISS./STD. CYCLE %	1.3915	1.5322	5.1383

CAL. FUEL AIR RATIO = 0.083853 MEAS. FUEL AIR RATIO = 0.081425 DIFF. MEAS. & CAL. F/A PERCENT = 2.9827

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	392.29	412.38	383.91	415.54

EXT GAS TEMP DEG. F	FXT-1	EXT-2	FXT-3	EXT-4	SEXT-1	SEXT-2
	932.92	489.14	650.48	1314.7	1306.3	1313.8

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.203
	157.97	174.26	73.627	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.249
	303.32	2629.3	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	46.486	46.943	60.886	43.218

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	89.578	2.9565	54.460	2361.9

CELL TEMP. = 80.293 HEATER TEMP = 88.566 COOLER TEMP = 28.754

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POOR QUALITY



NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDELL REC 03/25/76 18:37:21.900 FAC SEX15 PGM C003 RDG 2433

LEANOUT 25 BTDC TO CI APP 50 DEG HUM = 0 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.120 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP.	PRESS.	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	48.891	29.134	162.90	762.72	0.18903	14.579

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	76.271	5.3738	44.746	66.910	62.400	5.9604

COOLING AIR	TEMP.	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	52.256	3.0059	3.8118	9969.2	3.3984	-15.896

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	3.3984	21.760	1.7349	0.039839	118.07

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.081813	0.081793	1.2211	2434.0	2434.7	257.72	119.44

WET CORRECTION FAC,  $\bar{K}$  = 0.86685 EXHAUST MOLE. WT. = 27.537 EXHAUST DENSITY = 0.071299 EXHAUST FLOW RATE = 11575.

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	1578.5	762.16	6.56410	10.703	0.14131
CORRECTED CONC. TO WET BASIS			5.6901	9.2775	0.12250

	HC	NOX	CO
EMISSION RATE	0.65593	1.0498	47.817
EMISSION MASS/MODE	0.054661	0.087486	3.9848
EMISSION MASS/RATED HP	0.00034163	0.00054679	0.024905
MODE EMIS./STD. CYCLE %	17.981	36.453	59.297

CAL. FUEL AIR RATIO = 0.081533 MEAS. FUEL AIR RATIO = 0.081813 DIFF. MEAS. & CAL. F/A PERCENT = -0.34183

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	348.87	376.78	377.24	404.91

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1262.1	-192.44	740.59	1571.2	1267.2	1272.1

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	170.12	183.74	72.455	25.914

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	250.84	2357.8	29.251

INDUCTION AIR	IAIPT1	IAIRT2	TAIRT1	TAIRT2
	48.416	48.891	31.492	44.447

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	89.373	2.0230	54.385	1973.4

CELL TEMP. = 82.546 HEATING TEMP = 87.491 COOLER TEMP = 43.959

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NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDELL REC 03/25/76 18:40:32.077 FAC SEX15 PGM C003 RDG 2434

LEANOUT 25 BTDC TO CL APP 50 DEG HUM = 0 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.120 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	50.023	29.114	101.96	471.66	0.10925	14.415

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIF
	77.537	5.4515	44.712	44.854	41.572	5.9853

COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	52.775	2.9389	3.7202	9844.1	3.0106	-17.046

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	3.0106	24.150	1.6214	0.037233	64.088

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.088141	0.088120	1.3155	2349.3	2349.8	144.93	64.830

WET CORRECTION FACTOR = 0.86823 EXHAUST MOLE. WT. = 27.053 EXHAUST DENSITY = 0.070048 EXHAUST FLOW RATE = 7328.4

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	2033.0	209.70	8.94840	9.4383	0.12939	
CORRECTED CONC. TO WET BASIS			7.7693	8.1946	0.11234	

	HC	NOX	CO
EMISSION RATE	0.53486	0.18288	41.336
EMISSION MASS/MODE	0.053486	0.018288	4.1336
EMISSION MASS/RATED HP	0.00033429	0.00011430	0.025835
MODE EMISS./STD. CYCLE	17.594	7.6198	61.512

CAL. FUEL AIR RATIO = 0.087825 MEAS. FUEL AIR RATIO = 0.088141 DIFF. MEAS. & CAL. F/A PERCENT = -0.35841

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	307.27	324.97	317.19	336.23

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1066.0	55.330	541.60	1433.0	1116.9	1117.1

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE =
	172.35	184.73	71.679	18.144

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE =
	150.51	2290.7	29.190

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	49.393	50.023	-52.770	44.840

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	84.228	2.0903	52.518	2006.2

CELL TEMP. \* 83.110 INLET TEMP = 87.307 COOLER TEMP \* 42.492

NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDELL REC 03/25/76 18:46:12.179 FAC SEX15 PGM C003 RDS 2435

LEANOUT 25 BTDC TO CL APP 50 DEG HUM = 0.3 MCDE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.120 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	47.081	29.126	206.36	977.60	0.25102	14.767

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	72.880	5.3102	44.835	81.779	78.788	5.9451

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	52.384	3.0084	3.9538	9973.8	3.8172	-15.171

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	3.8172	15.232	1.7974	0.041274	155.12

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.080593	0.080572	1.2029	2698.8	2700.0	296.58	152.40

WET CORRECTION FACTOR = 0.85118 EXHAUST MOLE. WT. = 27.633 EXHAUST DENSITY = 0.071549 EXHAUST FLOW RATE = 14768.

MEASURED CONC.	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1448.9	277.83	7.50850	10.245	0.028023
CORRECTED CONC. TO WET BASIS			6.3911	8.7204	0.023852

	HC	NOX	CO
EMISSION RATE	0.76819	0.48826	68.523
EMISSION MASS/MCDE	0.0038410	0.0024413	0.34261
EMISSION MASS/RATED HP	2.4006E-05	1.5258E-05	0.0021413
MCDE EMLS./STD. CYCLE %	1.2635	1.0172	5.0984

CAL. FUEL AIR RATIO = 0.084157 MEAS. FUEL AIR RATIO = 0.080593 DIFF MEAS. & CAL. F/A PERCENT = 4.4222

CYL TEMP. DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	411.06	436.34	399.68	429.64

FXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1078.3	277.89	970.54	1749.7	1371.6	1374.8

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.214
	183.83	199.91	73.347	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.231
	295.83	2597.3	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	46.660	47.081	-75.287	45.002

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	87.836	2.9673	54.903	2367.7

CELL TEMP. = 81.721 HEATER TEMP = 88.490 COOLER TEMP = 45.181

NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDELL REC 03/25/76 18:49:27.498 FAC SEX15 PGM C003 RDG 2436

LEANOUT 25 RTDC TO CL APP 50 DEG HUM = 0 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.120 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	48.416	29.130	163.38	763.96	0.19751	14.590

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIF
	74.409	5.3801	44.795	62.769	61.758	5.9070

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	52.948	3.0023	3.7769	9962.5	3.6112	-15.251

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	3.6112	18.918	1.8097	0.041557	118.34

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.080839	0.080818	1.2066	2431.4	2432.3	258.73	119.78

WET CORRECTION FACTOR = 0.86165 EXHAUST MOLE. WT. = 27.614 EXHAUST DENSITY = 0.071498 EXHAUST FLOW RATE = 11551.

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM NOX PPM CO DRY CO2 DRY O2 DRY	
	1473.5 706.39 6.59580 10.729 0.077648	
CORRECTED CONC. TO WET BASIS	5.6833 9.2450 0.066905	

EMISSION RATE	HC	NOX	CO
	0.61108 0.97103 47.663		
EMISSION MASS/MODE	0.050423 0.080919 3.9719		
EMISSION MASS/RATED HP	0.00031827 0.00050575 0.024824		
MODE EMIS./STD. CYCLE %	16.751 33.716 59.105		

CAL. FUEL AIR RATIO = 0.081745 MEAS. FUEL AIR RATIO = 0.080839 DIFF MEAS. & CAL. F/A PERCENT = 1.1204

CYL TEMP. DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	365.99	390.16	394.56	422.47

EXT GAS TEMP DEG. F	FXT-1	EXT-2	EXT-3	FXT-4	SEXT-1	SEXT-2
	1222.4	-402.25	1048.3	1839.3	1308.3	1310.9

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE =
	188.20	201.72	71.695	26.251

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE =
	254.10	2381.5	29.242

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	47.941	48.416	-47.114	45.466

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	87.879	0.099610	53.640	347.12

CELL TEMP. = 82.671 HEATER TEMP = 87.764 COOLER TEMP = 44.439

NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDETT REC 03/25/76 18:53:08.679 FAC SEX15 PGM C003 RDG 2437  
 LEANOUT 25 BTDC TO CI APP 50 DEG HUM = 0 % MCRF = 5.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.120 RATED HP. = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	49.932	29.120	102.33	472.02	0.11540	14.409	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	76.493	5.4611	44.740	42.879	40.642	6.0147	
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	53.048	2.8725	3.6020	9718.4	3.1870	-16.271	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	3.1870	11.235	1.7114	0.039300	63.967		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.086103	0.086082	1.2851	2350.1	2351.4	144.62	64.713
WET CORRECTION FAC = 0.86024				EXHAUST MOLE. WT. = 27.206		EXHAUST DENSITY = 0.070442	
				EXHAUST FLOW RATE = 7279.3			
MEASURED CONC.		PART PER MILLION WET		PER CENT			
		HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
		1989.8	199.72	8.90220	9.5233	0.088959	
CORRECTED CONC. TO WET BASIS				7.6580	8.1923	0.076534	
EMISSION RATE		HC	NOX	CO			
		0.51999	0.17301	40.471			
EMISSION MASS/MODE		0.051999	0.017301	4.0471			
EMISSION MASS/RATED HP		0.00032499	0.00010813	0.025294			
MODE EMISSIONS/CYCLE %		17.105	7.2085	60.224			
CAL. FUEL AIR RATIO = 0.087748				MEAS. FUEL AIR RATIO = 0.086103		DIFF. MEAS. & CAL. F/A PERCENT = 1.9113	
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	310.31	327.09	320.55	336.71			
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	1211.0	-277.42	802.54	1661.2	1139.1	1136.0	
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.288			
	186.36	197.93	72.191				
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.166				
	151.27	2319.7					
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2			
	49.311	49.932	19.114	46.068			
OPIFICE AIR	TEMP	DELTAP	ORFP	FLOW			
	88.779	1.0422	53.522	1431.6			
CELL TEMP. = 83.234		HEATER TEMP = 97.660		COOLER TEMP = 44.248			

NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDELL REC 03/25/76 18:56:09.728 FAC SEX15 PGM C003 RDG 2438

LEANOUT 25 BTDC TO CL APP 50 DEG HUM = 0 % MCDE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.120 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	49.549	29.140	207.00	980.26	0.25328	14.777

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	75.021	5.3234	44.779	78.822	76.817	5.9979

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	54.156	2.9386	3.7653	9843.5	3.5039	-15.066

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	3.5039	27.595	1.8087	0.041533	156.32

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.078364	0.078343	1.1696	2701.2	2702.5	297.95	153.25

WET CORRECTION FACTOR = 0.85449 EXHAUST MOLE. WT. = 27.812 EXHAUST DENSITY = 0.072013 EXHAUST FLOW RATE = 14682.

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM NOX PPM CO DRY CO2 DRY O2 DRY	
	1301.6 590.66 6.2513 10.930 0.057506	
CORRECTED CONC. TO WET BASIS		
	5.3416 9.3396 0.049138	

EMISSION RATE	HC	NOX	CO
	0.68609	1.0320	56.939
EMISSION MASS/MODE	0.0034305	0.0051600	0.28470
EMISSION MASS/RATED HP	2.1440E-05	3.2250E-05	0.0017793
MODE EMLS./STD. CYCLE %	1.1284	2.1500	4.2365

CAL. FUEL AIR RATIO = 0.080893 MEAS. FUEL AIR RATIO = 0.078364 DIFF MEAS. & CAL. F/A PERCENT = 3.2284

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	407.50	431.48	402.78	431.60

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	914.00	532.31	818.87	1758.4	1377.5	1380.9

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.209
	187.30	202.97	73.531	

DYNO COND.	TORQUE	RPM	CYL BACK PRESSURE = 29.261
	292.87	2643.8	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	49.056	49.549	107.02	45.518

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	89.233	1.0332	53.535	1424.9

CILL TEMP. = 83.927 HEATER TEMP = 87.581

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NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDEII REC 03/25/76 18:59:54.916 FAC SEX15 PGM C003 RDG 2439  
 LEANOUT 25 BTDC TO CL APP 50 DEG HUM = 0 % MCDE = 4.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.120 RATED HP. = 160.00 HC RATIO = 2.1250  
 COMB. AIR TEMP 50.680 PRESS 29.107 CFM 164.10 DRY FLOW 766.07 VAPOR FLOW 0.19382 PRESS TOTAL 14.586  
 COMB. FUEL TEMP 76.254 PRESS 5.3696 DENSITY 44.746 TURBO FLOW 64.060 FLOW TRON 60.312 FPIP 5.9850  
 COOLING AIR TEMP 53.929 UDEL-HOOD 2.9051 DEL-HOOD 3.7888 FLOW 9780.4 REL-HUM 3.2471 DEW-POINT -15.581  
 REL-HUM 1 2 HUMIDITY % H2O VAPOR CORRECTED HP  
 3.2471 31.483 1.7710 0.040669 118.88  
 ENG. COND. F/A DRY F/A WET EQU. RATIO RPM-1 RPM-2 TORQUE BHP  
 0.078729 0.078709 1.1751 2435.6 2437.0 258.78 120.01  
 WET CORRECTION FA. DR = 0.86276 EXHAUST MOLE. wt. = 27.783 EXHAUST DENSITY = 0.071936 EXHAUST FLOW RATE = 11490.  
 MEASURED CONC. PART PER MILLION WET PER CENT  
 HC PPM NOX PPM CO DRY CO2 DRY O2 DRY  
 1358.6 882.79 5.66390 11.200 0.11351  
 CORRECTED CONC. TO WET BASIS 4.8866 9.6631 0.097932  
 EMISSION RATE HC NOX CO  
 0.56045 1.2071 40.764  
 EMISSION MASS/MODE 0.046704 0.10059 3.3970  
 EMISSION MASS/RATED HP 0.00029190 0.00062869 0.021231  
 MODE FMS./STD. CYCLE 7 15.363 41.913 50.551  
 CAL. FUEL AIR RATIO = 0.079383 MEAS. FUEL AIR RATIO = 0.078729 DIFF MEAS. & CAL. F/A PERCENT = 0.83121  
 CYL TEMP. DEG. F CYL-1 CYL-2 CYL-3 CYL-4  
 373.54 397.82 399.31 427.85  
 EXT GAS TEMP DEG. F EXT-1 EXT-2 EXT-3 EXT-4 SEXT-1 SEXT-2  
 1042.2 91.700 862.70 1885.5 1317.7 1320.1  
 ENGINE OIL FOILT SOILT OILP MANIFOLD PPESSURE = 26.140  
 187.22 203.60 71.807  
 DYN0 COND. TORQUE RPM CYL. BACK PPESSURE = 29.190  
 254.38 2343.1  
 INDUCTION AIR IAIRT1 IAIRT2 TAIRT1 TAIRT2  
 50.215 50.680 142.59 46.186  
 ORIFICE AIR TEMP DELTAP DRFP FLOW  
 89.696 2.0346 53.538 1978.2  
 CFLL TEMP. = 84.630 HEAVY TEMP = 87.625 COOLER TEMP = 42.637

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NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDEII REL 03/25/76 19:11:48.404 FAC SEX15 PGM C003 RDG 2441

LEANOUT 25 BIDC TO CL APP 50 DEG HUM = 0 % MCDF = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.120 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	49.604	29.126	101.00	465.96	0.11664	14.410

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	75.775	5.4761	44.759	42.774	39.565	6.0117

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	50.808	2.9688	3.7310	9900.1	3.3036	-15.921

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	3.3036	13.105	1.7522	0.040237 63.639

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.084910	0.084889	1.2673	2350.2	2351.2	143.92	64.403

WET CORRECTION FACTOR = 0.86547 EXHAUST MOLE. WT. = 27.296 EXHAUST DENSITY = 0.070677 EXHAUST FLOW RATE = 7154.3

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM NOX PPM CO DRY CO2 DRY C2 DRY	
	1856.8 307.38 7.87960 10.072 0.11721	
CORRECTED CONC. TO WET BASIS		6.8195 8.7171 0.10144

	HC	NOX	CO
EMISSION RATE	0.47689	0.26169	35.421
EMISSION MASS/MODE	0.047689	0.026169	3.5421
EMISSION MASS/RATED HP	0.00029806	0.00016356	0.022138
MODE EMIS./STD. CYCLE %	15.687	10.904	52.709

CAL. FUEL AIR RATIO = 0.084915 MEAS. FUEL AIR RATIO = 0.084910 DIFF MEAS. & CAL. F/A PERCENT = 0.0053350

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	347.42	364.52	350.82	376.08

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1494.8	209.24	683.05	1599.7	1176.8	1177.2

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.296
	183.43	196.05	70.695	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.195
	155.05	2296.8	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	49.046	49.604	142.65	46.048

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	88.194	2.9804	53.495	2371.9

CELL TEMP. = 82.970 HEATER TEMP = 87.542 COOLER TEMP = 41.096

NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDELL REC 03/25/76 19:15:23.985 FAC SEX15 PGM C003 R0G 2442  
 LEANOUT 25 BTDC TO CL APP 50 DEG HUM = 0 % MODE = 3.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.120 RATED HP. = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP 48.352	PRESS 29.134	CFM 206.56	DRY FLOW 979.90	VAPOR FLOW 0.26116	PRESS TOTAL 14.777
COMB. FUEL	TEMP 74.595	PRESS 5.3348	DENSITY 44.790	TURBO FLOW 78.141	FLOW TRON 77.171	FPIP 5.9412
COOLING AIR	TEMP 52.283	UDEL-HOOD 2.9893	DEL-HOOD 3.8079	FLOW 9938.3	REL-HUM 3.7794	DEW-POINT -14.591
REL-HUM	1 3.7794	2 9.9930	HUMIDITY 1.8556	% H2O VAPOR 0.042840	CORRECTED HP 156.43	
ENG. COND.	F/A DRY 0.078753	F/A WET 0.078732	EQU. RATIO 1.1754	RPM-1 2701.1	RPM-2 2702.1	TOFQUE 298.51 BHP 153.53

 WET CORRECTION FACTOR = 0.85788 EXHAUST MOLE. WT. = 27.781 EXHAUST DENSITY = 0.071931 EXHAUST FLOW RATE = 14699.  

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM 1237.1	NOX PPM 584.94	CO DRY 6.10970
CORRECTED CONC. TO WET BASIS		CO2 DRY 10.977
		CO 9.4168

EMISSION RATE	HC 0.65283	NOX 1.0232	CO 55.934
EMISSION MASS/MODE	0.0032642	0.0051159	0.27967
EMISSION MASS/RATED HP	2.0401E-05	3.1974E-05	0.0017479
MODE EMIS./STD. CYCLE	1.0737	2.1316	4.1618

 CAL. FUEL AIR RATIO = 0.080513 MEAS. FUEL AIR RATIO = 0.078753 DIFF. MEAS. & CAL. F/A PERCENT = 2.2342  

CYL TEMP DEG.F	CYL-1 413.20	CYL-2 432.69	CYL-3 407.67	CYL-4 445.44
EXT GAS TEMP DEG.F	EXT-1 1430.2	EXT-2 506.44	EXT-3 846.63	EXT-4 1697.2
				SFXT-1 1388.1
				SEXT-2 1391.2
ENGINE OIL	FOILT 188.30	SOILT 200.31	OILP 73.583	MANIFOLD PRESSURE = 28.249
DYNO COND.	TORQUE 293.82	RPM 2647.3		CYL. BACK PRESSURE = 29.266
INDUCTION AIR	IAIRT1 47.896	IAIPT2 48.352	TAIRT1 98.369	TAIRT2 44.612
ORIFICE AIR	TEMP 88.736	DELTA P 2.0280	ORIF 53.588	FLOW 1976.9
CELL TEMP. = 83.822	HEATER TEMP = 87.529			COOLER TEMP = 41.477



NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDE11 REC 03/25/76 19:20:06.816 FAC SE/15 PGM C003 RDG 2443

LEANOUT 25 BTDC TO CI APP 50 DEG HUM = 0 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.120 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	50.434	29.167	162.26	758.12	0.19788	14.600

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	76.094	5.3705	44.750	61.289	58.653	5.9178

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	53.184	2.9757	3.7871	9913.0	3.3837	-15.096

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	3.3837	19.542	1.8271	0.041955	117.75

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.077366	0.077346	1.1547	2428.3	2429.6	257.18	118.91

WET CORRECTION FACTOR = 0.85728 EXHAUST MOLE. WT. = 27.894 EXHAUST DENSITY = 0.072223 EXHAUST FLOW RATE = 11311.

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY
	1350.7	897.19	5.65830	11.204
CORRECTED CONC. TO WET BASIS			CO DRY	O2 DRY
			4.8507	0.13005
			9.6051	0.11149

EMISSION RATE	HC	NOX	CO
	0.54852	1.2077	39.836
EMISSION MASS/MODE	0.045710	0.10064	3.3197
EMISSION MASS/RATED HP	0.00028569	0.00062901	0.020748
MODE EMIS./STD. CYCLE %	15.036	41.934	49.400

CAL. FUEL AIR RATIO = 0.079310 MEAS. FUEL AIR RATIO = 0.077366 DIFF. MEAS. & CAL. F/A PERCENT = 2.5131

CYL TEMP. DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	370.94	392.74	397.63	425.54

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1471.7	94.107	927.65	1720.2	1315.4	1317.8

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE =
	187.37	200.43	71.995	25.977

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE =
	255.29	2336.3	29.169

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	49.941	50.434	81.980	46.202

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	89.417	3.0101	53.592	2380.6

CELL TEMP. = 84.753 HEATER TEMP = 87.542 COOLER TEMP = 42.655

NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDELL REC 03/25/76 19:25:52.228 FAC SEX15 PGM C003 RDG 2444  
 LEANCUT 25 BTDC TO CL APP 50 DEG HUM = 0 % MODE = 5.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.120 RATED HP. = 160.00 HC RATIO = 2.1250  
 COMB. AIR TEMP 49.485 PRESS 29.128 CFM 101.76 DRY FLOW 469.00 VAPOR FLOW 0.11793 PRESS TOTAL 14.413  
 COMB. FUEL TEMP 75.704 PRESS 5.4701 DENSITY 44.761 TURBO FLOW 42.381 FLOW TRON 39.871 FPIP 6.0141  
 COOLING AIR TEMP 49.923 UDEL-HOOD 2.9873 DEL-HOOD 3.7252 FLOW 9934.7 REL-HUM 3.3340 DEW-POINT -15.851  
 REL-HUM 1 3.3340 2 11.275 HUMIDITY 1.7602 % H2O VAPOR CORRECTED HP 0.040420 64.499  
 ENG. COND F/A DRY 0.085012 F/A WET 0.084991 EQU. RATIO 1.2688 RPM-1 2354.5 RPM-2 2355.5 TORQUE 145.61 BHP 65.280  
 WET CORRECTION FACTOR = 0.86749 EXHAUST MOL.F. WT. = 27.289 EXHAUST DENSITY = 0.070657 EXHAUST FLOW RATE = 7203.7  
 MEASURED CONC. PART PER MILLION WET PER CENT  
 HC PPM 1811.7 NOX PPM 306.27 CO DRY 7.74600 CO2 DRY 10.128 O2 DRY 0.13593  
 CORRECTED CONC. TO WET BASIS 6.7196 8.7863 0.11792  
 EMISSION RATE HC 0.46852 NOX 0.26255 CO 35.143  
 EMISSION MASS/MODE 0.046852 0.026255 3.5143  
 EMISSION MASS/RATED HP 0.00029283 0.00016409 0.021964  
 MODE EMIS./STD. CYCLE % 15.412 10.939 52.296  
 CAL. FUEL AIR RATIO = 0.084501 MEAS. FUEL AIR RATIO = 0.085012 DIFF MEAS. & CAL. F/A PERCENT = -0.60059  
 CYL TEMP DEG.F CYL-1 307.48 CYL-2 324.16 CYL-3 317.18 CYL-4 332.56  
 EXT GAS TEMP DEG.F EXT-1 1088.8 EXT-2 143.59 EXT-3 843.44 EXT-4 1641.9 SEXT-1 1127.6 SEXT-2 1126.0  
 ENGINE OIL FOILT 184.31 SOILT 198.48 OILP 72.035 MANIFOLD PRESSURE = 18.171  
 DYNO COND. TORQUE 139.08 RPM 2285.2 CYL. BACK PRESSURE = 29.228  
 INDUCTION AIR IAIRT1 48.946 IAIRT2 49.485 TAIRT1 63.168 TAIRT2 46.602  
 ORIFICE AIR TEMP 87.495 DELTAP 2.0256 ORFP 53.414 FLOW 1978.0  
 CELL TEMP. = 82.926 HEATER TEMP = 87.577 COOLER TEMP = 41.295

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NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDEII REC 03/25/76 19:30:34.374 FAC SEX15 PGM C003 RDG 2445

LEANOUT 25 BTDC TO CL APP 50 DEG HUM = 0 % MODE = 3.0000 ND. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.120 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	47.474	29.122	205.53	974.58	0.26039	14.778

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	73.743	5.3477	44.812	75.741	72.895	5.9754

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	51.491	3.0668	3.8599	10081.	3.9163	-14.551

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	3.9163	40.578	1.8702	0.042947	154.38

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.074796	0.074777	1.1164	2697.6	2698.4	295.12	151.59

WET CORRECTION FACTOR = 0.85550 EXHAUST MOLE. WT. = 28.106 EXHAUST DENSITY = 0.072774 EXHAUST FLOW RATE = 14397.

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM	CO DRY
	1091.0	4.70700
CORRECTED CONC. TO WET BASIS	NOX PPM	CO2 DRY
	893.69	11.664
		0.085608
		4.0269
		9.9789
		0.073238

EMISSION RATE	HC	NOX	CO
	0.56389	1.5140	42.090
EMISSION MASS/MODE	0.0028195	0.0075699	0.21045
EMISSION MASS/RATED HP	1.7622E-05	4.7312E-05	0.0013153
MODE EMIS./STD. CYCLE %	0.92745	3.1541	3.1317

CAL. FUEL AIR RATIO = 0.077199 MEAS. FUEL AIR RATIO = 0.074796 DIFF MEAS. & CAL. F/A PERCENT = 3.2115

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	415.91	440.43	418.31	449.74

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1123.8	637.21	1013.9	1794.7	1422.0	1425.2

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.285
	188.54	204.67	73.123	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.257
	293.59	2647.6	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	47.008	47.474	75.705	44.897

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	87.704	1.9960	53.556	1963.9

CFLT TEMP. = 83.084 HEATER TEMP = 87.577

NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDELL REC 03/25/76 19:35:09.670 FAC SEF15 PGM C003 RDG 2446  
 LEANOUT 25 BTDC TO CL APP 50 DEG HUM = 0 % MODE = 4.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.130 RATED HP. = 160.00 HC RATIO = 2.1250  
 COMB. AIR TEMP PRESS CFM DRY FLOW VAPOR FLOW PRESS TOTAL  
 49.110 29.145 163.00 761.93 0.20291 14.597  
 COMB. FUEL TEMP PRESS DENSITY TURBO FLOW FLOW TRON FPIP  
 75.278 5.3759 44.772 59.663 57.438 6.0039  
 COOLING AIR TEMP UDEL-HOOD DEL-HOOD FLOW REL-HUM DEW-POINT  
 51.746 3.0883 3.9114 10121. 3.6263 -14.791  
 REL-HUM 1 2 HUMIDITY % H2O VAPOR CORRECTED HP  
 3.6263 9.3609 1.8541 0.042807 118.20  
 ENG. COND. F/A DRY F/A WET EQU. RATIO RPM-1 RPM-2 TORQUE BHP  
 0.075385 0.075364 1.1251 2431.2 2432.8 258.23 119.54  
 WET CORRECTION FAC. IR = 0.86143 EXHAUST MOLE. WT. = 28.057 EXHAUST DENSITY = 0.072647 EXHAUST FLOW RATE = 11281.  
 MEASURED CONC. PART PER MILLION WET PER CENT  
 HC PPM NOX PPM CO DRY CO2 DRY O2 DRY  
 1218.8 1218.8 4.49380 11.745 0.15718  
 CORRECTED CONC. TO WET BASIS 3.8711 10.117 0.13540  
 EMISSION RATE HC NOX CO  
 0.49363 1.6363 31.706  
 EMISSION MASS/MODE 0.041136 0.13636 2.6421  
 EMISSION MASS/RATED HP 0.00025710 0.00085222 0.016513  
 MODE EMIS./STD. CYCLE % 13.532 56.815 39.317  
 CAL. FUEL AIR RATIO = 0.076560 MEAS. FUEL AIR RATIO = 0.075385 DIFF. MEAS. & CAL. F/A PERCENT = 1.5587  
 CYL TEMP DEG.F CYL-1 CYL-2 CYL-3 CYL-4  
 377.59 396.56 400.27 425.52  
 EXT GAS TEMP DEG.F EXT-1 EXT-2 EXT-3 EXT-4 SEXT-1 SEXT-2  
 1258.1 205.53 1098.5 1865.3 1341.8 1344.1  
 ENGINE OIL EOILT SOILT OILP MANIFOLD PRESSURE = 26.076  
 187.31 202.93 71.815  
 DYNO COND. TORQUE RPM CYL. BACK PRESSURE = 29.220  
 258.08 2332.0  
 INDUCTION AIR IAIRT1 IAIRT2 TAIRT1 TAIRT2  
 48.626 49.110 45.202 45.916  
 ORIFICE AIR TEMP DELTAP ORFP FLOW  
 88.482 1.0429 53.735 1432.5  
 CELL TEMP. = 84.112 HEATER TEMP = 87.577 COOLER TEMP = 42.338

NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDEII REC 03/25/76 19:49:05.098 FAC SEX15 PGM C003 RDG 2447

LEANOUT 25 BTDC TO CL APP 50 DEG HUM = 0 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.130 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	49.823	29.129	101.39	466.98	0.12864	14.417

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FIP
	75.748	5.4803	44.759	40.502	37.546	6.0354

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	49.539	2.9840	3.7722	9928.5	3.6076	-14.461

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	3.6076	42.348	1.9283	0.044279	64.880

ENG. CO'D.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.080400	0.080378	1.2000	2351.8	2352.4	146.57	65.634

WET CORRECTION FACTOR = 0.86239 EXHAUST MOLE. WT. = 27.648 EXHAUST DENSITY = 0.071589 EXHAUST FLOW RATE = 7049.4

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	NOX PPM	CO DRY
1760.7	483.95	6.35460
CORRECTED CONC. TO WET BASIS		CO DRY
		10.851
		0.15198
		0.13106

EMISSION RATE	HC	NOX	CO
	0.44558	0.40597	28.047
EMISSION MASS/MODE	0.044558	0.040597	2.8047
EMISSION MASS/RATED HP	0.00027849	0.00025373	0.017529
MODE EMIS./STD. CYCLE %	14.657	16.916	41.736

CAL. FUEL AIR RATIO = 0.081058 MEAS. FUEL AIR RATIO = 0.080400 DIFF MEAS. & CAL. F/A PERCENT = 0.81771

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	307.58	323.85	316.15	334.99

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1306.8	315.93	863.00	1615.2	1113.0	1114.5

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.158
	177.41	174.96	71.875	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.185
	139.77	2310.7	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	49.257	49.823	142.30	47.089

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	87.276	2.0338	53.754	1982.2

CELL TEMP. = 82.046 HEATER TEMP = 87.542 COOLER TEMP = 41.730

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NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDELL REC 03/25/76 19:52:38.240 FAC SEX15 PGM C003 RDG 2448

LEANOUT 25 BTDC TO CI APP 50 DEG HUM = 0 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.130 RATED HP = 160.00 PC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	47.950	29.138	206.01	976.32	0.27701	14.785

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	73.911	5.3531	44.808	74.695	72.976	5.9631

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	51.427	3.0388	3.8713	10030.	4.0868	-13.605

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	4.0868	11.793	1.9861	0.045607	156.19

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.074746	0.074725	1.1156	2700.0	2701.2	298.36	153.38

WET CORRECTION FACTOR = 0.85563 EXHAUST MOLE. WT. = 28.111 EXHAUST DENSITY = 0.072785 EXHAUST FLOW RATE = 14420.

MEASURED CONC.	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1115.3	971.40	4.70080	11.676	0.10879
CORRECTED CONC. TO WET BASIS			4.0221	9.9906	0.093084

EMISSION RATE	HC	NOX	CO
	0.57738	1.6669	42.107
EMISSION MASS/MODE	0.0028869	0.0083345	0.21054
EMISSION MASS/RATED HP	1.8043E-05	5.2091E-05	0.0013159
MODE EMIS./STD. CYCLE %	0.94963	3.4727	3.1330

CAL. FUEL AIR RATIO = 0.077110 MEAS. FUEL AIR RATIO = 0.074746 DIFF MEAS. & CAL. F/A PERCENT = 3.1617

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	416.41	432.26	413.33	451.38

FXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	FXT-4	SEXT-1	SEXT-2
	1117.4	670.53	944.65	1747.7	1401.5	1405.4

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.273
	181.67	198.79	73.611	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.303
	291.78	2644.0	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	47.465	47.950	83.240	45.388

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	87.591	0.14811	53.323	464.24

CELL TEMP. = 83.374 HEATER TEMP = 87.494 COOLER TEMP = 41.703

NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDELL REC 03/25/76 19:56:47.099 FAC SEX15 PGM C003 RDG 2449

LEANOUT 25 BTDC TO CL APP 50 DEG HUM = 0 % MCDE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.130 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS.	CFM	DRY FLOW	VAPOR FLOW	PRESS. TOTAL
	49.101	29.096	164.67	769.71	0.20832	14.598

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	75.119	5.3930	44.776	59.676	57.732	6.0336

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	51.582	2.9857	3.9324	9931.6	3.6869	-14.541

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	3.6869	16.610	1.8946	0.043505	118.46

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.075004	0.074984	1.1195	2430.8	2432.3	258.83	119.80

WET CORRECTION FACTOR = 0.86004 EXHAUST MOLE. WT. = 28.089 EXHAUST DENSITY = 0.072729 EXHAUST FLOW RATE = 11379.

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM NOX PPM CO DRY CO2 DRY O2 DRY	
	1222.6 1266.0 4.49020 11.732 0.16678	
CORRECTED CONC. TO WET BASIS	3.8518 10.090 0.14343	

EMISSION RATE	HC	NOX	CO
	0.49949	1.7145	31.905
EMISSION MASS/MODE	0.041624	0.14287	2.6588
EMISSION MASS/RATED HP	0.00026015	0.00089295	0.016617
MODE EMISSION STD. CYCLE %	13.692	59.530	39.565

CAL. FUEL AIR RATIO = 0.076531 MEAS. FUEL AIR RATIO = 0.075004 DIFF. MEAS. & CAL. F/A PERCENT = 2.0362

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	380.05	398.88	402.20	429.16

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1496.6	223.45	1065.9	1767.0	1340.0	1342.9

ENGINE OIL	EDILT	SOILT	OILP	MANIFOLD PRESSURE = 26.322
	188.82	195.58	71.215	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.231
	265.80	2334.8	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	48.654	49.101	53.663	45.941

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	88.264	2.0051	53.384	1967.1

CELL TEMP. = 84.094 HEATER TEMP = 87.473 COOLER TEMP = 41.839



NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDEII REC 03/25/76 20:00:28.955 FAC SEX15 PGM C003 RDG 2450

LEANOUT 25 BIDC TO CL APP 50 DEG HUM = 0 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.130 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	50.926	29.118	105.85	488.27	0.12754	14.426

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	77.148	5.4887	44.723	42.170	38.938	6.0357

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT
	51.710	2.9486	3.7586	9862.3	3.2854	-15.266

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	3.2854	16.448	1.8285	0.041989	68.876

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.079747	0.079726	1.1903	2353.2	2354.0	155.27	69.571

WET CORRECTION CORR = 0.86677 EXHAUST MOLE. WT. = 27.701 EXHAUST DENSITY = 0.071724 EXHAUST FLOW RATE = 7352.2

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM	CO DRY
	1585.8	11.153
	593.66	0.14829
	5.6798	0.12854
	4.9231	

CORRECTED CONC. TO WET BASIS

	HC	NOX	CO
EMISSION RATE	0.41855	0.51940	26.278
EMISSION MASS/MODE	0.041855	0.051940	2.6278
EMISSION MASS/RATED HP	0.00026160	0.00032463	0.016424
MODE EMISS./STD. CYCLE %	13.768	21.642	39.104

CAL. FUEL AIR RATIO = 0.079450 MEAS. FUEL AIR RATIO = 0.079747 DIFF. MEAS. & CAL. F/A PERCENT = -0.37259

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	326.35	340.22	338.09	354.56

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	925.88	339.85	1007.6	1292.1	1191.9	1190.9

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE =
	186.63	196.76	71.079	18.981

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE =
	158.62	2312.0	29.192

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	50.397	50.926	91.600	46.607

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	88.753	2.0530	53.574	1988.3

CELL TEMP. = 84.446 HEATER TEMP = 87.494 COOLER TEMP = 41.830

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NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDELI REC 03/25/76 20:07:48.271 FAC SEX15 PGM C003 RDG 2452

LEANOUT 25 BTDC TO CL APP 50 DEG HUM = 0 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.140 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	49.996	29.107	205.36	974.39	0.27394	14.798

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	76.200	5.3657	44.748	73.212	70.708	5.9559

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	54.347	3.1260	3.9731	10189.	3.7548	-13.735

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	3.7548	16.156	1.9680	0.045191	155.71

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.072566	0.072546	1.0831	2702.1	2703.6	296.14	152.36

WET CORRECTION FACTOR = 0.85707 EXHAUST MOLE WT. = 28.295 EXHAUST DENSITY = 0.073262 EXHAUST FLOW RATE = 14268.

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM NOX PPM CO DRY CO2 DRY C2 DRY	
	1020.2 1207.2 3.67640 12.118 0.10473	
CORRECTED CONC. TO WET BASIS		3.1509 10.386 0.089761

	HC	NOX	CO
EMISSION RATE	0.52260	2.0499	32.641
EMISSION MASS/MODE	0.0026130	0.010249	0.16320
EMISSION MASS/RATED HP	1.6331E-05	6.4058E-05	0.0010200
MODE EMISS./STD. CYCLE %	0.85954	4.2705	2.4286

CAL. FUEL AIR RATIO = 0.074867 MEAS. FUEL AIR RATIO = 0.072566 DIFF. MEAS. & CAL. F/A PERCENT = 3.1705

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	433.59	450.37	435.58	461.53

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	886.12	695.82	1147.4	1379.8	1458.8	1461.1

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	188.46	204.06	72.955	= 28.302

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	290.19	2609.3	= 29.320

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	49.539	49.996	185.74	45.242

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	89.958	0.058406	53.550	225.18

CELL TEMP. = 85.603 HEATER TEMP = 87.494 COOLER TEMP = 61.000

NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDEII REC 03/25/76 20:12:02.879 FAC SEX15 PGM C003 RDG 2453

LEANOUT 25 BTDC TO CL APP 50 DEG HUM = 0 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.140 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	47.895	29.068	163.75	765.36	0.21791	14.599

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	74.213	5.3840	44.800	57.692	55.377	5.9961

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	50.680	3.1005	3.9009	10143.	4.0577	-13.750

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	4.0577	26.573	1.9930	0.045766	118.02

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.072354	0.072333	1.0799	2431.0	2432.0	258.19	119.51

WET CORRECTION FACTOR = 0.85668 EXHAUST MOLE. WT. = 28.313 EXHAUST DENSITY = 0.073309 EXHAUST FLOW RATE = 11198.

MEASURED CONC.	PART PER MILLION WET	PER CENT			
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1126.8	1498.1	3.70000	12.131	0.17256
CORRECTED CONC. TO WET BASIS			3.1697	10.393	0.14783

EMISSION RATE	HC	NOX	CO
	0.45300	1.9964	25.770
EMISSION MASS/MODE	0.037750	0.16637	2.1475
EMISSION MASS/RATED HP	0.00023594	0.0010398	0.013422
MODE EMIS./STD. CYCLE %	12.418	69.321	31.957

CAL. FUEL AIR RATIO = 0.074730 MEAS. FUEL AIR RATIO = 0.072354 DIFF MEAS. & CAL. F/A PERCENT = 3.2845

CYL TEMP. DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	384.61	404.14	405.10	427.43

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1273.8	392.01	1226.1	1436.6	1368.0	1369.5

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	197.13	204.58	71.311	26.259

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	280.96	2375.0	29.235

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	47.456	47.895	119.32	45.965

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	87.328	1.0343	53.282	1428.2

CELL TEMP. = 82.952 HEATER TEMP = 87.619 COOLER TEMP = 41.948

NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDEII REC 03/25/76 20:16:25.373 FAC SEX15 PGM C003 RDG 2454

LEANOUT 25 BTDC TO CL APP 50 DEG HUM = 0 % MODE = 5.0010 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.140 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	50.197	29.145	100.80	464.55	0.12909	14.422

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	76.484	5.5034	44.740	38.039	36.559	5.9937

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	50.808	2.9228	3.8256	9813.8	3.5900	-14.321

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	3.5900	54.969	1.9451	0.044666	64.727

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.078696	0.078674	1.1745	2351.9	2352.7	146.16	65.449

WET CORRECTION FAC = 0.86676 EXHAUST MOLE WT. = 27.785 EXHAUST DENSITY = 0.071943 EXHAUST FLOW RATE = 6967.2

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	1502.0	662.77	5.23480	11.381	0.13633	
CORRECTED CONC. TO WET BASIS			4.5373	9.8647	0.11817	

	HC	NOX	CO
EMISSION RATE	0.37570	0.54950	22.951
EMISSION MASS/MODE	0.037570	0.054950	2.2951
EMISSION MASS/RATED HP	0.00023481	0.00034344	0.014344
MODE EMIS./STD. CYCLE %	12.358	22.896	34.153

CAL. FUEL AIR RATIO = 0.078431 MEAS. FUEL AIR RATIO = 0.078696 DIFF MEAS. & CAL. F/A PERCENT = -0.33651

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	321.10	334.96	332.27	347.31

EXT GAS TEMP DEG.F	FXT-1	FXT-2	FXT-3	FXT-4	SEXT-1	SEXT-2
	869.68	456.28	1242.0	1383.6	1189.2	1186.8

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.226
	186.08	192.29	71.439	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.202
	152.75	2313.0	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	49.631	50.197	121.64	46.936

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	88.150	1.9591	53.554	1945.9

CELL TEMP. = 83.207 HEATER TEMP = 87.930 COOLER TEMP = 41.957

NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDEII REC 03/25/76 20:20:41.661 FAC SEX15 PGM C003 RDG 2455

LEANOUT 25 BTDC TO CL APP 50 DEG HUM = 0 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = .25.000 DEG. BAROMETRIC PRESSURE = 29.140 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	48.800	29.110	205.51	973.50	0.29475	14.781

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	74.773	5.3657	44.785	75.695	72.349	6.0186

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	52.729	2.9942	3.9471	9947.6	4.2231	-12.575

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	4.2231	13.375	2.1194	0.048668	154.93

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.074318	0.074296	1.1092	2697.9	2699.4	295.53	151.81

WET CORRECTION FACTOR = 0.86398 EXHAUST MOLE. WT. = 28.147 EXHAUST DENSITY = 0.072878 EXHAUST FLOW RATE = 14354.

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM NOX PPM CO DRY CO2 DRY O2 DRY	
	1050.6 1279.7 3.74770 12.125 0.10865	
CORRECTED CONC. TO WET BASIS		3.2379 10.476 0.093872

EMISSION RATE	HC	NOX	CO
	0.54141	2.1860	33.744
EMISSION MASS/MODE	0.0027071	0.010930	0.16872
EMISSION MASS/RATED HP	1.6919E-05	6.8314E-05	0.0010545
MODE EMIS./STD. CYCLE %	0.89048	4.5543	2.5107

CAL. FUEL AIR RATIO = 0.074995 MEAS. FUEL AIR RATIO = 0.074318 DIFF MEAS. & CAL. F/A PERCENT = 0.91101

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	426.03	442.10	428.26	426.76

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1646.1	716.31	1115.6	1346.0	1441.4	1444.1

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.381
	189.70	203.03	72.931	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.258
	296.57	2621.5	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	48.380	48.800	81.303	45.466

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	88.727	1.0409	53.469	1430.8

CELL TEMP. = 83.778 HEATER TEMP = 87.833 COOLER TEMP = 41.912

NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDEII REC 03/25/76 20:24:03.066 FAC SEX15 PGM C003 RDG 2456

LEANOUT 25 BTDC TO CL APP 50 DEG HUM = 0 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.140 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	49.896	29.191	163.36	763.80	0.22364	14.606

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	75.846	5.3855	44.757	56.874	55.554	5.9799

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	52.611	2.9965	3.7921	9951.7	3.8740	-13.300

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	3.8740	6.3166	2.0496	0.047065	118.49

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.072733	0.072712	1.0856	2429.2	2430.7	258.83	119.72

WET CORRECTION FACTOR = 0.85867 EXHAUST MOLE. WT. = 28.281 EXHAUST DENSITY = 0.073226 EXHAUST FLOW RATE = 11192.

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM NOX PPM CO DRY CO2 DRY O2 DRY	
	1117.8 1541.7 3.70610 12.111 0.18354	
CORRECTED CONC. TO WET BASIS	3.1823 10.399 0.15760	

EMISSION RATE	HC	NOX	CO
	0.44915	2.0533	25.859
EMISSION MASS/MODE	0.037429	0.17111	2.1549
EMISSION MASS/RATED HP	0.00073393	0.0010694	0.013468
MODE EMISSIONS/CYCLE	12.312	71.296	32.067

CAL. FUEL AIR RATIO = 0.074710 MEAS. FUEL AIR RATIO = 0.072733 DIFF MEAS. & CAL. F/A PERCENT = 2.7178

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	388.41	408.33	407.65	431.58

FXT GAS TEMP DEG.F	FXT-1	FXT-2	FXT-3	FXT-4	SEXT-1	SEXT-2
	1218.6	424.91	1320.2	1437.0	1363.9	1366.0

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PPESSURE = 26.180
	187.17	198.85	71.207	

DYNO COND.	TORQUE	RPM	CYL. BACK PPESSURE = 29.199
	256.74	2387.3	

INDUCTION AIR	TAIPT1	TAIPT2	TAIRT1	TAIRT2
	49.421	49.896	51.539	46.059

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	89.268	2.0378	53.562	1980.4

CELL TEMP. = 84.674 HEATER TEMP = 87.833 COOLER TEMP = 41.984

NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDEII REC 03/25/76 20:27:42.013 FAC SEX15 PGM C003 RDG 2457

LEANOUT 25 BTDC TO CI APP 50 DEG HUM = 0 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.140 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	51.938	29.148	101.46	467.52	0.13453	14.426

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	78.041	5.4965	44.699	38.854	36.367	6.0186

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	52.611	2.9176	3.7293	9803.9	3.4863	-13.770

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	3.4863	8.5669	2.0143	0.046256	64.733

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.077786	0.077763	1.1510	2354.4	2355.7	145.69	65.310

WET CORRECTION FACTOR = 0.86368 EXHAUST MOLE WT. = 27.859 EXHAUST DENSITY = 0.072134 EXHAUST FLOW RATE = 6987.3

MEASURED CONC.	PART PER MILLION WET	PER CENT		
	HC PPM	CO DRY	CO2 DRY	O2 DRY
	11.5	5.18090	11.393	0.14653
CORRECTED CONC. TO WET BASIS	NOX PPM			
	712.85	4.4746	9.8402	0.12656

EMISSION RATE	HC	NOX	CO
	0.37916	0.59273	22.599
EMISSION MASS/MODE	0.037916	0.059273	2.2699
EMISSION MASS/RATED HP	0.00023698	0.00037045	0.014187
MODE EMIS./STD. CYCLE %	12.472	24.697	33.778

CAL. FUEL AIR RATIO = 0.078294 MEAS. FUEL AIR RATIO = 0.077766 DIFF. MEAS. & CAL. F/A PERCENT = 0.65355

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	327.66	339.64	338.80	352.84

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	768.88	475.61	1147.9	1264.4	1197.7	1195.8

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.351
	186.67	204.57	71.375	

DYNO COND.	TORQUE	RPM	CYL BACK PRESSURE = 29.212
	146.44	2334.5	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	51.391	51.938	54.160	47.122

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	90.402	1.0467	53.968	1432.6

CELL TEMP. = 84.446 HEATER TEMP = 88.061 COILFR TEMP = 42.021

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NASA-Lewis PRELIMINARY DATA 03/25/76 CADDEII REC 03/25/76 20:31:25.219 FAC SEX15 PGM C003 RDG 2458

LEANOUT 25 BTDC TO CL APP 50 DEG HUM = 0.3 MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.140 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	50.497	29.159	205.95	976.10	0.30516	14.793

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	76.572	5.3924	44.738	65.685	64.887	5.9799

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	54.229	3.0596	3.9014	10068.	4.0966	-12.045

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	4.0966	4.7685	2.1884	0.050253	152.51

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.066476	0.066455	0.99218	2696.9	2698.3	291.01	149.44

WET CORRECTION FACTOR = 0.85906 EXHAUST MOLE. WT. = 28.710 EXHAUST DENSITY = 0.074338 EXHAUST FLOW RATE = 14007.

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	700.57	2579.0	1.4396	13.087	0.35942
CORRECTED CONC. TO WET BASIS			1.2367	11.243	0.30876

	HC	NOX	CO
EMISSION RATE	0.35229	4.2988	12.577
EMISSION MASS/MODE	0.0017615	0.021494	0.062883
EMISSION MASS/RATED HP	1.1009E-05	0.00013434	0.00039302
MODE EMIS./STD. CYCLE %	0.57943	8.9559	0.93576

CAL. FUEL AIR RATIO = 0.069153 MEAS. FUEL AIR RATIO = 0.066476 DIFF MEAS. & CAL. F/A PERCENT = 4.0263

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	420.94	427.18	433.13	453.65

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	854.32	692.79	1295.8	1440.7	1472.8	1475.5

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.353
	188.27	202.02	73.355	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.315
	289.88	2633.2	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	50.042	50.497	49.599	45.617

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	90.847	2.9531	53.408	2355.8

CFLT TEMP. = 85.840 HEATED TEMP = 84.241 COOLER TEMP = 42.057

NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDEII REC 03/25/76 20:34:49.316 FAC SEX15 PGM C003 RDG 2459

LEANOUT 25 BTDC TO CL APP 50 DEG HUM = 0 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.140 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	48.060	29.114	172.26	806.46	0.24309	14.626

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	74.382	5.4059	44.796	55.745	54.203	6.0129

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	50.844	3.0216	3.8599	9998.4	4.2774	-12.815

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	4.2774	40.818	2.1100	0.048453	118.37

ENG. CORR.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.067212	0.067191	1.0032	2428.2	2429.5	259.21	119.84

WFT CORRECTION FACTOR = 0.86214 EXHAUST MOLE. WT. = 28.669 EXHAUST DENSITY = 0.074232 EXHAUST FLOW RATE = 11597.

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	524.15	2135.5	2.19630	12.467	0.76362
CORRECTED CONC. TO WET BASIS			1.8935	10.748	0.65834

	HC	NOX	CO
EMISSION RATE	0.21823	2.9472	15.942
EMISSION MASS/MODE	0.018186	0.24560	1.3285
EMISSION MASS/RATED HP	0.00011366	0.0015350	0.0083034
MODE EMIS./STD. CYCLE %	5.9822	102.33	19.770

CAL. FUEL AIR RATIO = 0.069391 MEAS. FUEL AIR RATIO = 0.067212 DIFF. MEAS. & CAL. F/A PERCENT = 3.2427

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	396.05	413.11	393.52	398.98

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1224.8	616.39	1128.1	1568.7	1420.7	1423.2

ENGINE OIL	EOILT	SOILT	OTLP	MANIFOLD PRESSURE = 27.051
	187.28	206.13	71.255	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.220
	263.19	2369.2	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	47.575	48.060	160.00	46.090

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	88.238	1.0806	53.531	1458.1

CELL TEMP. = 83.383 HEATER TEMP = 88.456 COOLER TEMP = 42.066



NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDEII REC 03/25/76 20:38:44.811 FAC SEX15 PGM C003 RDG 2460

LEANOUT 25 BTDC TO CL APP 50 DEG HUM = 0 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.140 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS. TOTAL
	50.060	29.143	103.66	477.90	0.14047	14.426

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	76.617	5.5226	44.737	36.184	34.161	6.0219

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	50.726	2.9273	3.7739	9822.2	3.8178	-13.435

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	3.8178	80.958	2.0575	0.047248	64.996

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.071482	0.071461	1.0569	2354.3	2355.1	146.62	65.726

WET CORRECTION F TOR = 0.87182 EXHAUST MLE. WT. = 28.388 EXHAUST DENSITY = 0.073503 EXHAUST FLOW RATE = 6968.4

MEASURED CONC.	PART PER MILLION WET	PER CENT		
HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
1011.4	1453.9	2.23470	12.749	0.34263
CORRECTED CONC. TO WET BASIS		1.9482	11.114	0.29871

EMISSION RATE	HC	NOX	CO
	0.25302	1.2057	9.8562
EMISSION MASS/MODE	0.025302	0.12057	0.98562
EMISSION MASS/RATED HP	0.00015814	0.00075355	0.0061601
MODE EMIS./STD. CYCLE %	8.3230	50.236	14.667

CAL. FUEL AIR RATIO = 0.071017 MEAS. FUEL AIR RATIO = 0.071482 DIFF MEAS. & CAL. F/A PERCENT = -0.65106

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	333.47	337.02	340.78	355.44

FXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1475.3	455.14	1384.0	1412.3	1249.4	1248.5

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.719
	186.48	200.35	71.343	

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.214
	141.41	2309.9	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	49.549	50.060	84.205	46.872

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	89.015	4.2281	53.544	2815.4

CELL TEMP. = 83.084 HEATER TEMP = 88.539 COOLER TEMP = 41.758

NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDEII REC 03/25/76 20:42:32.212 FAC SEX15 PGM C003 RDG 2461

LEANOUT 25 BTDC TO CL APP 50 DEG HUM = 0 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.140 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	48.590	29.150	206.24	977.42	0.31154	14.785

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	75.003	5.3891	44.779	67.661	66.025	5.9532

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	52.411	3.0485	3.8957	10047.	4.4821	-11.740

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	4.4821	17.080	2.2312	0.051235	151.75

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.067550	0.067529	1.0082	2703.3	2704.8	289.39	148.95

WET CORRECTION FACTOR = 0.86422 EXHAUST MOL F. WT. = 28.648 EXHAUST DENSITY = 0.074177 EXHAUST FLOW RATE = 14071.

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	673.87	2588.5	1.41550	13.105	0.32821
CORRECTED CONC. TO WET BASIS			1.2233	11.325	0.28365

	HC	NOX	CO
EMISSION RATE	0.34041	4.3343	12.497
EMISSION MASS/MODE	0.0017020	0.021671	0.062485
EMISSION MASS/RATED HP	1.0638E-05	0.00013545	0.00039053
MODE EMIS./STD. CYCLE %	0.55989	9.0297	0.92984

CAL. FUEL AIR RATIO = 0.069185 MEAS. FUEL AIR RATIO = 0.067550 DIFF MEAS. & CAL. F/A PERCENT = 2.4198

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	427.84	426.10	433.48	458.03

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1148.8	782.76	1229.8	1451.8	1490.9	1493.2

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	189.30	203.21	73.071	28.297

DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	293.53	2601.0	29.322

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	48.133	48.590	112.96	45.353

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	89.687	4.2394	53.573	2817.4

CELL TEMP. = 83.787 HEATER TEMP = 88.698 COOLER TEMP = 41.613

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NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDEII REC 01/25/76 20:48:04.395 FAC SEX15 PGM C003 RDG 2462

LEANOUT 25 BTDC TO CL APP 50 DEG HUM = 0 % MCDE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.140 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	49.813	29.127	170.05	795.71	0.24873	14.613

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	76.120	5.3876	44.750	55.276	53.954	5.9925

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	52.329	2.9610	3.7002	9885.6	4.1505	-12.245

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	4.1505	2.2102	2.1981	0.050246 118.14

ENG. COMB.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.067806	0.067785	1.0120	2428.1	2429.9	258.18	119.36

WET CORRECTION FACTOR = 0.86439 EXHAUST MOLE. WT. = 28.631 EXHAUST DENSITY = 0.074132 EXHAUST FLOW RATE = 11464.

	PART PER MILLION WET			PER CENT	
MEASURED CONC.	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	629.76	2332.4	2.08690	12.614	0.69109
CORRECTED CONC. TO WET BASIS			1.8039	10.904	0.59737

	HC	NOX	CO
EMISSION RATE	0.25920	3.1822	15.015
EMISSION MASS/MODE	0.021600	0.26518	1.2513
EMISSION MASS/RATED HP	0.00013500	0.0016574	0.0078203
MODE EMLS./STD. CYCLE %	7.1053	110.49	18.620

CAL. FUEL AIR RATIO = 0.069432 MEAS. FUEL AIR RATIO = 0.067806 DIFF MEAS. & CAL. F/A PERCENT = 2.3973

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	395.32	413.09	393.68	397.02

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	719.56	615.53	886.17	1399.5	1414.9	1415.8

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 26.782
	187.28	193.46	71.271	

DYNO COND.	TORQUE	RPM	CYL. BACK PPESSURE = 29.285
	261.85	2367.2	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	49.385	49.813	191.47	45.884

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	90.690	4.2620	53.631	2822.2

CEIL TEMP. = 84.349 HEATER TEMP = 88.878 COOLER TEMP = 41.721

NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDELI REC 03/25/76 20:53:54.465 FAC SEX15 PGM C003 RDG 2463

LEANOUT 25 RTDC TO CL APP 50 DEG HUM = C % MCDE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.140 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	52.138	29.143	104.17	480.50	0.14693	14.427

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	78.704	5.5148	44.582	36.092	34.176	5.9895

COOLING AIR	TEMP	UDFL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	52.484	2.9372	3.6084	9840.9	3.6776	-12.805

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	3.6776	15.858	2.1405	0.049152	65.673

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.071127	0.071106	1.0616	2354.9	2355.0	147.71	66.233

WET CORRECTION FACTOR = 0.87018 EXHAUST MOLE. WT. = 28.419 EXHAUST DENSITY = 0.073582 EXHAUST FLOW RATE = 6996.5

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	C2 DRY	
	1068.3	1477.0	2.21860	12.770	0.34725	
CORRECTED CONC. TO WET BASIS			1.9306	11.112	0.30218	

	HC	NOX	CO
EMISSION RATE	0.26833	1.2298	9.8065
EMISSION MASS/MODE	0.026833	0.12298	0.98065
EMISSION MASS/RATED HP	0.00016771	0.00076860	0.0061291
MODE EMISS./STD. CYCLE %	8.8266	51.240	14.593

CAL. FUEL AIR RATIO = 0.070996 MEAS. FUEL AIR RATIO = 0.071127 DIFF. MEAS. & CAL. F/A PERCENT = -0.18486

CYL TEMP DEG. E	CYL-1	CYL-2	CYL-3	CYL-4
	331.05	333.36	337.66	352.91

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1333.6	507.08	1476.7	1391.2	1240.3	1239.5

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.720
	184.81	187.16	71.191	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.209
	139.41	2313.8	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	51.646	52.138	110.65	46.666

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	91.726	4.1844	53.633	2794.1

CELL TEMP. = 85.209 HEATER TEMP = 89.099 COOLER TEMP = 41.286

NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDELL REC 03/25/76 21:25:02.577 FAC SFX15 PGM C003 RDG 2464

LEANOUT 25 BTDC I & T 50 DEG HUM = 30 % NEUTRAL MCDE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.140 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DPY FLOW	VAPOR FLOW	PRESS TOTAL
	53.666	29.139	11.300	51.336	0.12985	14.311

COMB. FUEL	TEMP	PRESS	DENSITY	TUPRO FLOW	FLOW TRON	FPIP
	75.926	5.7423	44.755	6.4839	5.0855	6.0921

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT
	60.114	-0.019373	0.82391	2126.8	28.427	23.948

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	28.427	57.906	17.706	0.40659	0.19238

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.099064	0.098814	1.4786	601.62	601.98	1.6835	0.19285

WET CORRECTION FACTOR = 0.88868 EXHAUST MOLE. WT. = 26.287 EXHAUST DENSITY = 0.068064 EXHAUST FLOW RATE = 830.85

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM	CO DRY
	32824.	9.71810
	NOX PPM	CO2 DRY
	8.8099	6.7704
CORRECTED CONC. TO WET BASIS		O2 DRY
		3.1610
		CO
		8.6363
		6.0167
		2.8091

EMISSION RATE	HC	NOX	CO
	0.97906	0.00087104	5.2094
EMISSION MASS/MODE	0.016318	1.4517E-05	0.086823
EMISSION MASS/RATED HP	0.00010199	9.0733E-08	0.00054264
MCDE EMISS./STD. CYCLE %	5.3677	0.0060489	1.2920

CAL. FUEL AIR RATIO = 0.098485 MEAS. FUEL AIR RATIO = 0.099064 DIFF MEAS. & CAL. F/A PERCENT = -0.58411

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	291.60	300.68	287.67	296.68

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1026.7	-454.00	184.56	860.59	635.02	630.06

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 11.636
	133.27	142.58	47.797	

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.047
	4.7381	596.76	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	52.338	53.666	28.612	48.450

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	80.923	0.092609	53.517	327.52

CELL TEMP. = 80.699 HEATER TEMP = 80.514 COOLFF TEMP = 41.259

NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDELL REC 03/25/76 21:27:24.057 FAC SEX15 PGM C003 RDG 2465

LEANOUT 25 BTDC I & T 50 DEG HUM = 30 % NEUTRAL MODE = 2.0010 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.140 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS. TOTAL
	53.875	29.139	19.495	88.505	0.22019	14.314

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	76.847	5.6835	44.731	12.667	8.5298	6.0837

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	60.511	-0.021587	0.80038	2115.5	27.755	23.643

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	27.755	67.257	17.415	0.39992	1.5565

ENG. CORR.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.096377	0.096138	1.4385	1203.0	1203.2	6.8090	1.5596

WET CORRECTION FACTOR = 0.86658 EXHAUST MOLE. WT. = 26.468 EXHAUST DENSITY = 0.068531 EXHAUST FLOW RATE = 1419.1

MEASURED CONC.	PART PER MILLION WET	PER CENT			
	HC PPM	CO DRY	CO2 DRY	O2 DRY	
	8708.9	24.544	11.0680	8.1105	0.29471
CORRECTED CONC. TO WET BASIS		9.5912	7.0285	0.25539	

EMISSION RATE	HC	NOX	CO
	0.44369	0.0041450	9.8817
EMISSION MASS/MODE	0.081343	0.00075991	1.8116
EMISSION MASS/RATED HP	0.00050839	4.7495E-06	0.011323
MODE EMISS./STD. CYCLE %	26.758	0.31663	26.959

CAL. FUEL AIR RATIO = 0.097246 MEAS. FUEL AIR RATIO = 0.096377 DIFF MEAS. & CAL. F/A PERCENT = 0.90208

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	258.66	272.64	259.69	271.66

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	740.83	-391.19	40.847	688.03	569.80	560.24

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 8.3150
	135.21	99.822	57.030	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.193
	1.7858	1201.1	

INDUCTION AIR	IAIRT1	IAIPT2	TAIRT1	TAIRT2
	52.829	53.875	-33.383	48.942

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	90.245	1.0865	53.578	1459.4

CELL TEMP. = 80.414 HEATER TEMP = 89.514 COOLER TEMP = 41.286

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NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDEII REC 03/25/76 21:33:13.793 FAC SEX15 PGM C003 RDG 2467

LEANOUT 25 BTDC I & T 50 DEG HUM = 30 % NEUTRAL MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.140 RATED HP. = 160.00 HC RATIO = 2.1250

CCMB. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	55.173	29.142	19.199	87.091	0.21658	14.313

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	78.386	5.6886	44.590	12.791	8.4398	6.0849

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	62.115	-0.040960	0.79955	2016.3	26.457	23.633

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	26.457	66.361	17.408	0.39974	1.5366

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.096908	0.096667	1.4464	1206.8	1208.1	6.6923	1.5377

WET CORRECTION FACTOR = 0.86908 EXHAUST MOLE. WT. = 26.432 EXHAUST DENSITY = 0.068438 EXHAUST FLOW RATE = 1399.0

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM	CO DRY
	8473.8	11.0300
	NOX PPM	CO2 DRY
	24.098	8.1756
		0.29299
CORRECTED CONC. TO WET BASIS		CO DRY
		9.5856
		7.1053
		0.25463

EMISSION RATE	HC	NOX	CO
	0.42561	0.3040121	9.7362
EMISSION MASS/MODE	0.078028	0.00073554	1.7850
EMISSION MASS/RATED HP	0.00048767	4.5971E-06	0.011156
MODE EMIS./STD. CYCLE %	25.667	0.30648	26.562

CAL. FUEL AIR RATIO = 0.096876 MEAS. FUEL AIR RATIO = 0.096908 DIFF MEAS. & CAL. F/A PERCENT = -0.032783

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	263.01	278.08	264.04	279.12

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	849.44	-255.23	-23.936	726.56	577.96	567.76

ENGINE OIL	EDILT	SOILT	OILP	MANIFOLD PRESSURE = 0.3118
	142.49	82.803	56.322	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.269
	10.254	1208.5	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	54.111	55.173	-59.330	49.315

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	91.186	2.0129	53.414	1965.5

CELL TEMP. = 81.016 HEATER TEMP = 89.548 COOLER TEMP = 41.495

NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDEII REC 03/25/76 21:40:43.575 FAC SEX15 PG4 C003 RDG 2469

LEAN CUT 25 BTDC I & T 50 DEG HUM = 30 % 3/4 T CLOSED MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.140 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	54.801	29.138	18.098	82.056	0.20214	14.310

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	78.430	5.7165	44.689	11.440	6.9637	6.0813

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	61.727	-0.026845	0.80038	2088.6	26.562	23.453

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	26.562	51.879	17.244	0.39597	1.4149

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.084828	0.084620	1.2661	1201.5	1200.9	6.1923	1.4166

WET CORRECTION FACTOR = 0.85565 EXHAUST MOLE. WT. = 27.303 EXHAUST DENSITY = 0.070693 EXHAUST FLOW RATE = 1262.1

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	4023.0	46.089	8.25520	9.8020	0.19852
CORRECTED CONC. TO WET BASIS			7.0635	8.3870	0.16986

	HC	NOX	CO
EMISSION RATE	0.18227	0.0069218	6.4720
EMISSION MASS/MODE	0.033417	0.0012690	1.1865
EMISSION MASS/RATED HP	0.00020885	7.9312E-06	0.0074158
MODE EMIS./STD. CYCLE %	10.992	0.52875	17.657

CAL. FUEL AIR RATIO = 0.086854 MEAS. FUEL AIR RATIO = 0.084828 DIFF MEAS. & CAL. F/A PERCENT = 2.3882

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	257.03	271.23	260.82	275.85

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1571.0	-454.00	-236.00	661.59	552.49	541.77

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	144.90	118.76	56.162	7.8271

DYAO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	9.5265	1215.3	29.135

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	53.675	54.801	-28.493	49.509

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	90.655	4.5637	53.325	2917.5

CELL TEMP. = 80.249 HEATER TEMP = 89.652 COOLER TEMP = 41.304



NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDEII REC 03/25/76 21:48:37.909 FAC SEX15 PGM C003 RDG 2472

LEANOUT 25 BTDC T & T 50 DEG HUM = 30 % 3/4 T CLOSED MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.140 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	54.828	29.134	18.265	82.817	0.19984	14.314

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	78.660	5.7099	44.683	3.9662	6.9577	6.0864

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	61.061	-0.022694	0.73451	2109.8	26.002	23.073

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	26.002	64.684	15.891	0.38788 1.8206

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.084013	0.083811	1.2539	1202.9	1203.5	7.9591	1.8229

WET CORRECTION FACTOR = 0.85208 EXHAUST MOLE. WT. = 27.365 EXHAUST DENSITY = 0.070855 EXHAUST FLOW RATE = 1269.8

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	NOX PPM	CO DRY
4091.6	45.685	8.29890
CORRECTED CONC. TO WET BASIS		CO2 DRY
		9.7230
		0.19474
		0.16593

EMISSION RATE	HC	NOX	CO
EMISSION MASS/MODE	0.18652	0.0069034	6.5190
EMISSION MASS/RATED HP	0.034196	0.0012656	1.1952
MODE EMIS./STD. CYCLE %	0.00021372	7.9101F-06	0.0074697
	11.249	0.52734	17.785

CAL. FUEL AIR RATIO = 0.087118 MEAS. FUEL AIR RATIO = 0.084013 DIFF MEAS. & CAL. F/A PERCENT = 3.6964

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	252.07	263.54	252.66	264.02

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1407.1	-454.00	-151.32	645.38	554.32	543.34

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 7.8271
	144.17	148.65	56.414	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.069
	2.9307	1206.7	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	53.730	54.828	165.05	49.640

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	89.582	4.6194	53.550	2937.1

CFLT TEMP. = 79.755 HEATER TEMP = 89.382 COOLER TEMP = 41.332

NASA-LEWIS		PRELIMINARY DATA		03/25/76		CADDEII		REC 03/25/76 22:04:23.431		FAC SEX15		PGM C003		RDG 2477	
LEANOUT 25 BTDC I & T 50 DEG HUM = 30 % 1 1/2 T CLOS MCDE = 1.0000										NO. SCANS = 5					
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 29.140				RATED HP. = 160.00		HC RATIO = 2.1250			
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		53.966		29.136		11.258		51.041		0.12918		14.310			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		76.360		5.7948		44.743		3.9715		3.4053		6.0993			
COOLING AIR		TEMP		INLET-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		58.470		-0.031550		0.83166		2064.6		28.132		23.958			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		28.132		36.332		17.717		0.40684		0.81484					
ENG. CO. .		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.066718		0.066549		0.99579		606.12		607.86		7.0757		0.81659	
WET CORRECTION FACTOR = 0.88556				EXHAUST MOLE. WT. = 28.698				EXHAUST DENSITY = 0.074305				EXHAUST FLOW RATE = 734.47			
MEASURED CONC.		PART PER MILLION WET		PER CENT		CO DRY		CO2 DRY		C2 DRY					
		HC PPM		NOX PPM		1.64990		10.717		3.9280					
		15874.		39.180		1.4611		9.4908		3.4785					
CORRECTED CONC. TO WET BASIS															
EMISSION RATE		HC		NOX		CO									
		0.41857		0.0034244		0.77908									
EMISSION MASS/MODE		0.0069762		5.7073E-05		0.012985									
EMISSION MASS/RATED HP		4.3601E-05		3.5671E-07		8.1154E-05									
MODE EMIS./STD. CYCLE		2.2948		0.023781		0.19322									
CAL. FUEL AIR RATIO = 0.066682				MEAS. FUEL AIR RATIO = 0.066718				DIFF MEAS. & CAL. F/A PERCENT = -0.054496							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		256.95		285.05		273.98		62.046							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		1078.2		-454.00		314.55		889.54		672.60		669.29			
ENGINE OIL		FOILT		SOILT		OILP		MANIFOLD PRESSURE = 11.755							
		152.84		165.85		46.273									
DYNO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.250									
		0.91449		599.34											
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
		52.602		53.966		-93.800		49.469							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		87.949		4.7091		53.631		2967.8							
CELL TEMP. = 78.731				HEATER TEMP = 88.366				COOLER TEMP = 41.241							

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NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDEIT REC 03/25/76 22:06:56.279 FAC SEX15 PGM C003 RDG 2478

LEANOUT 25 BTDC I & T 50 DEG HUM = 30 % 1 1/2 T CLOS MCDE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.140 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	54.075	29.140	18.322	83.055	0.20677	14.312

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIR
	78.068	5.7300	44.699	10.518	6.3816	6.0867

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	59.816	-0.034871	0.71071	2047.6	27.568	23.653

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	27.568	80.132	17.427	0.40019	0.87524

ENG. COND.	F/A DRY	F/A WET	EQ. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.076836	0.076645	1.1468	1201.3	1201.5	3.8337	0.87686

WET CORRECTION FACTOR = 0.85643 EXHAUST MOLE. WT. = 27.937 EXHAUST DENSITY = 0.072336 EXHAUST FLOW RATE = 1239.3

MEASURED CONC.	PART PER MILLION WFT	PER CENT
HC PPM	NOX PPM	CO DRY
2370.0	62.788	4.99830
CORRECTED CONC. TO WET BASIS		4.2807
		9.8301
		0.16712
		0.14312

EMISSION RATE	HC	NOX	CO
	0.10544	0.0092595	3.8514
EMISSION MASS/MODE		0.019331	0.0016976
			0.70608
EMISSION MASS/RATED HP		0.00012082	1.0610E-05
			0.0044130
MODE EMIS./STD. CYCLE %		6.3589	0.70733
			10.507

CAL. FUEL AIR RATIO = 0.078291 MEAS. FUEL AIR RATIO = 0.076836 DIFF MEAS. & CAL. F/A PERCENT = 1.8933

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	249.95	274.63	263.36	458.25

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1158.0	-454.00	342.94	863.71	612.72	604.51

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 8.0120
	150.45	120.02	55.021	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.158
	7.2511	1178.6	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	52.975	54.075	-15.528	49.634

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	89.089	4.6034	53.588	2936.3

CELL TEMP. = 79.093 HEATER TEMP = 88.283 COOLER TEMP = 41.250

NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDEII REC 03/25/76 22:28:54.434 FAC SEX15 PGM C003 RDG 2487

LEANOUT 25 BTDC I & T 50 DEG HUM = 30 % 3/4 I OPEN MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.140 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	53.802	29.139	13.246	60.090	0.15802	14.313

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	76.147	5.7102	44.749	7.5506	6.2106	6.0888

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	61.088	-0.027122	0.70407	2087.2	29.407	24.678

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	29.407	55.233	18.408	0.42272	0.22440

ENG. COND.	F/A DRY	F/A WET	FOU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10336	0.10308	1.5426	600.42	599.82	1.9669	0.22486

WET CORRECTION F/A HP = 0.89764 EXHAUST MOLE. WT. = 26.010 EXHAUST DENSITY = 0.067346 EXHAUST FLOW RATE = 986.82

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM	CO DRY
	40218.	10.5040
	NOX PPM	CO2 DRY
	4.9515	5.5715
		4.0360
CORRECTED CONC. TO WET BASIS		
		9.4286
		5.0012
		3.6229

EMISSION RATE	HC	NOX	CO
	1.4248	0.00058146	6.7550
EMISSION MASS/MODE	0.023747	9.6911E-06	0.11258
EMISSION MASS/RATED HP	0.00014842	6.0569E-08	0.00070364
MODE EMIS./STD. CYCLE %	7.8114	0.0040379	1.6753

CAL. FUEL AIR RATIO = 0.10322 MEAS. FUEL AIR RATIO = 0.10336 DIFF MEAS. & CAL. F/A PERCENT = -0.12507

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	297.09	317.57	298.63	242.09

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	982.94	-388.29	226.70	680.38	686.80	683.19

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 12.739
	155.78	169.25	45.709	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.126
	5.2061	591.54	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	52.538	53.802	-21.365	49.179

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	89.216	4.5771	53.554	2925.4

CELL TEMP. = 78.581 HEATER TEMP = 83.954 COOLER TEMP = 40.878

NASA-LEWIS		PRELIMINARY DATA		03/25/76		CADDE11		REC 03/25/76 22:29:15.114		FAC SEX15		PGM C003		RDG 2488	
LEANOUT 25 BTDC I & T 50 DEG HUM = 30 % 3/4 T OPEN MODE = 1.0000 NO. SCANS = 5															
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 29.140				RATED HP. = 160.00		HC RATIO = 2.1250			
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		53.929		29.141		13.080		59.330		0.15535		14.310			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		76.413		5.7084		44.742		7.6112		6.2886		6.0828			
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		61.025		-0.015498		0.83221		2146.5		29.139		24.593			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		29.139		42.934		18.329		0.42089		0.57061					
ENG. CONC.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.10599		0.10572		1.5820		589.68		595.44		5.0922		0.57173	
WET CORRECTION FACTOR = 0.91550				EXHAUST MOLE. WT. = 25.846				EXHAUST DENSITY = 0.066921				EXHAUST FLOW RATE = 982.85			
MEASURED CONC.		PART PER MILLION WET				PER CENT									
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		41727.		4.4304		10.1530		5.4568		4.5215					
CORRECTED CONC. TO WET BASIS						9.2949		4.9957		4.1395					
EMISSION RATE		HC		NOX		CO									
		1.4723		0.00051818		6.6324									
EMISSION MASS/MODE		0.024539		8.6363E-06		0.11054									
EMISSION MASS/PATED HP		0.00015337		5.3977E-08		0.00069087									
MODE EMIS./STD. CYCLE %		8.0719		0.0035985		1.6449									
CAL. FUEL AIR RATIO = 0.10098				MEAS. FUEL AIR RATIO = 0.10599				DIFF MEAS. & CAL. F/A PERCENT = -4.7281							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		283.72		305.49		285.25		277.43							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		1169.5		-454.00		165.87		292.45		672.56		667.32			
ENGINE OIL		OIL T		SOIL T		OIL P		MANIFOLD PRESSURE = 12.613							
		155.84		168.81		45.741									
DYNO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.156									
		4.3276		587.64											
INDUCTION AIR		TAIRT1		TAIRT2		TAIRT1		TAIRT2							
		52.638		53.929		17.671		49.141							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		89.329		4.5980		53.533		2931.3							
CELL TEMP. = 78.536				HEATER TEMP = 89.981				COOLEP TEMP = 40.724							

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NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDEII REC 03/25/76 22:32:48.096 FAC SEX15 PGM C003 RDG 2489

LEANOUT 25 BTDC I & T 50 DEG HUM = 30 % 1 1/2 T OPEN MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.140 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	54.302	29.144	14.583	66.621	0.17675	14.309

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	76.865	5.6910	44.730	8.4481	7.1287	6.0786

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	61.710	-0.033764	0.72953	2053.2	29.122	24.838

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	29.122	76.914	18.571	0.42646	0.68916

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10700	0.10372	1.5971	600.72	600.84	6.0339	0.69016

WET CORRECTION FAC = 0.90175 EXHAUST MOLE. WT. = 25.785 EXHAUST DENSITY = 0.066762 EXHAUST FLOW RATE = 1107.3

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	45022.	5.1185	10.7690	5.2394	4.2206
CORRECTED CONC. TO WET BASIS			9.7107	4.7246	3.8060

	HC	NOX	CO
EMISSION RATE	1.7897	0.00067446	7.8065
EMISSION MASS/MODE	0.029829	1.1241E-05	0.13011
EMISSION MASS/RATED HP	0.00018643	7.0256E-08	0.00081317
MODE EMIS./STD. CYCLE %	9.8122	0.0046837	1.9361

CAL. FUEL AIR RATIO = 0.10554 MEAS. FUEL AIR RATIO = 0.10700 DIFF MEAS. & CAL. F/A PERCENT = -0.42935

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	260.45	284.82	263.74	186.74

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1564.1	-454.00	96.200	568.17	641.26	634.20

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	155.79	144.74	46.113	13.443

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	2.3402	595.20	29.073

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	53.129	54.302	159.41	48.955

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	90.106	4.6044	53.540	2931.2

CELL TEMP. = 78.854 HEATER TEMP = 89.189 COOLER TEMP = 40.941

NASA-LEWIS PRELIMINARY DATA 03/25/76 CADDEJI REC 03/25/76 22:35:14.417 FAC SEX15 PGM C003 RDG 2490

LEANOUT 25 RTDC I & T 50 DEG HUM = 30 % 1 1/2 T OPEN MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.140 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	54.275	29.134	22.671	102.90	0.27052	14.313

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	77.732	5.6394	44.707	12.647	10.897	6.0684

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	61.574	-0.034041	0.83415	2051.8	28.896	24.673

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	28.896	22.194	18.404	0.42261	1.3288

ENG. CORR.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10590	0.10563	1.5807	1202.9	1202.5	5.8089	1.3304

WET CORRECTION FACTOR = 0.87383 EXHAUST MOLE. WT. = 25.851 EXHAUST DENSITY = 0.066936 EXHAUST FLOW RATE = 1704.1

MEASURED CONC.	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	16920.	9.1439	12.7030	6.9018	0.55473
CORRECTED CONC. TO WET BASIS			11.100	6.0309	0.48474

	HC	NOX	CO
EMISSION RATE	1.0351	0.0018542	13.733
EMISSION MASS/MODE	0.18977	0.00033994	2.5176
EMISSION MASS/RATED HP	0.0011861	2.1246E-06	0.015735
MODE EMIS./STD. CYCLE %	62.426	0.14164	37.465

CAL. FUEL AIR RATIO = 0.10599 MEAS. FUEL AIR RATIO = 0.10590 DIFF. MEAS. & CAL. F/A PERCENT = 1.0244

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	245.56	269.77	252.38	409.44

EXT GAS TEMP DEG.F	EXT-1	FXT-2	FXT-3	EXT-4	SEXT-1	SEXT-2
	1570.6	-454.00	-34.897	671.76	597.33	587.41

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 9.1629
	151.40	302.95	55.413	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.170
	6.5743	1195.9	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	53.357	54.275	170.54	48.933

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	90.655	4.5804	53.569	2922.5

CELL TEMP. = 79.075 HEATER TEMP = 89.348 COOLER TEMP = 40.960

NASA-LEWIS PRELIMINARY DATA 03/26/76 CADDEII DEC 03/26/76 14:07:48.579 FAC SEX15 PGM C003 RDG 2494

LEANOUT-TO,CL,APP-25 PTDC-50 DEG.-HUM=30% MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.980 RATE HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	51.728	28.957	211.43	987.93	2.4149	14.744

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIF
	75.349	5.3315	44.770	65.894	80.669	6.0606

COOLING AIR	TEMP	UNDER-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	53.802	3.9067	4.6393	11499.	30.397	23.858

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	30.397	39.014	17.111	0.39202 156.48

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	PPM-1	RPM-2	TORQUE	PHP
	0.081655	0.081456	1.2187	2705.7	2707.0	293.60	151.25

WET CORRECTION FACTOR = 0.95330 EXHAUST MOLE. WT. = 27.549 EXHAUST DENSITY = 0.071331 EXHAUST FLOW RATE = 15014.

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	1550.3	10.281
NOX PPM	316.43	8.7729
CO DRY	7.4814	0.067587
CO2 DRY	6.3839	0.057672

CORRECTED CONC. TO WET BASIS	HC	NOX	CO
EMISSION RATE	0.83562	0.56538	69.588
EMISSION MASS/MODE	0.0041781	0.0028269	0.34794
EMISSION MASS/RATED HP	2.6113E-05	1.7668E-05	0.0021746
MODE EMIS./STD. CYCLE	1.3744	1.1779	5.1777

CAL. FUEL AIR RATIO = 0.083962 MEAS. FUEL AIR RATIO = 0.081655 DIFF MEAS. & CAL. F/A PERCENT = 2.8252

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	394.36	399.62	377.24	150.55

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	867.01	346.35	590.09	975.28	1332.9	1340.4

ENGINE OIL	OILT	SOILT	OILP	MANIFOLD PRESSURE = 28.071
	129.13	147.26	77.484	

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.103
	303.59	2623.2	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	51.327	51.728	40.778	49.317

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	83.102	0.14721	53.381	464.17

CELL TEMP. = 80.104 HEATER TEMP = 83.059 COOLER TEMP = 43.189

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NASA-LEWIS PRELIMINARY DATA 03/26/76 CADD11 REC 03/26/76 14:12:57.849 FAC SEX15 PGM C003 RDG 2495

LEANOUT-TO,CL,APP-25 RTDC-50 DEG.-HUM=30% MODE = 4.0000 NO. SCANS = 4

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.980 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	OPY FLOW	VAPOR FLOW	PRESS TOTAL
	52.124	28.986	168.36	776.82	1.9110	14.539

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	76.296	5.3777	44.745	64.595	63.048	6.0347

COOLING AIR	TEMP	WEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT
	54.885	3.8189	4.7921	11362.	29.729	23.726

RFL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	29.729	13.026	17.220	0.39544	120.22

ENG. COMP.	F/A DRY	F/A WET	EQU. RATIO	PPM-1	PPM-2	TORQUE	BHP
	0.081161	0.080962	1.2114	2432.6	2433.7	260.48	120.65

WET CORRECTION FACTOR = 0.85892 EXHAUST MOLE. WT. = 27.588 EXHAUST DENSITY = 0.071432 EXHAUST FLOW RATE = 11784.

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	1559.0	733.00	6.7513	10.624	0.094909
CORRECTED CONC. TO WET BASIS			5.7988	9.1249	0.081520

	HC	NOX	CO
EMISSION RATE	0.65956	1.0279	49.611
EMISSION MASS/MODE	0.054963	0.085659	4.1342
EMISSION MASS/RATED HP	0.00034352	0.00053537	0.025837
MODE EMISS./STD. CYCLE %	13.080	15.691	61.521

CAL. FUEL AIR RATIO = 0.082130 MEAS. FUEL AIR RATIO = 0.081161 DIFF MEAS. & CAL. F/A PERCENT = 1.1935

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	343.85	363.50	375.71	286.48

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	839.28	52.251	679.09	1132.6	1313.7	1318.6

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 26.068
	149.03	163.76	72.277	

DYMO COMP.	TORQUE	RPM	CYL. BACK PRESSURE = 29.061
	256.62	2357.0	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	51.714	52.124	100.34	48.687

CRIFICE AIR	TEMP	DELTA P	PREP	FLOW
	82.848	0.11726	53.154	393.89

CELL TEMP. = 82.431 HEATER TEMP = 83.117 COOLER TEMP = 43.309

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NASA-LEWIS		PRELIMINARY DATA		03/26/76		CADDPII		REC 03/26/76 14:24:15.528		FAC SEX15		PGM C003		RDG 2496	
LEANOUT-TO,CL,APP-25 RTDC-50 DEG.-HUM=30%								MODE = 5.0000		NO. SCANS = 5					
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PPESSURE = 20.970				RATED HP.= 160.00		HC RATIO= 2.1250			
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		53.002		28.980		104.71		476.07		1.1761		14.342			
COMB. FUEL		TEMP		PPESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		78.580		5.4974		44.685		43.092		40.663		6.0801			
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		56.225		2.9458		3.7268		9857.1		28.513		23.548			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		29.513		0.31003		17.293		0.39711		65.326					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.085413		0.085203		1.2749		2356.6		2356.6		146.03		65.524	
WET CORRECTION FACTOR = 0.85585				EXHAUST MOLE. WT. = 27.258				EXHAUST DENSITY = 0.070578				EXHAUST FLOW RATE = 7338.2			
MEASURED CONC.		PART PER MILLION WET				PER CENT									
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		1954.5		185.10		8.7903		9.5618		0.087689					
CORRECTED CONC. TO WET BASIS						7.5232		8.1835		0.075049					
EMISSION RATE		HC		NOX		CO									
		0.51489		0.16164		40.080									
EMISSION MASS/MODE		0.051489		0.016164		4.0080									
EMISSION MASS/RATED HP		0.00032181		0.00010102		0.025050									
MODE EMISS./STD. CYCLE %		16.937		6.7348		59.643									
CAL.FUEL AIR RATIO = 0.087480				MEAS. FUEL AIR RATIO = 0.085413				DIFF MEAS.& CAL. F/A PERCENT = 2.4196							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		308.94		326.06		317.89		-147.41							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		904.60		32.530		340.03		1012.4		1157.6		1157.5			
ENGINE OIL		FOILT		SOILT		OILP		MANIFOLD PRESSURE = 18.329							
		163.74		175.62		70.519									
DYAN COND.		TORQUE		RPM				CYL.BACK PRESSURE = 28.971							
		144.85		2300.4											
INDUCTION AIR		TAIRT1		TAIRT2		TAIRT1		TAIRT2							
		52.447		53.002		168.44		49.233							
ORIFICE AIR		TEMP		DELTA P		QPP		FLOW							
		84.323		0.10241		53.347		355.70							
CELL TEMP. = 93.673				HEATER TEMP = 83.323				COOLER TEMP = 43.542							

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NASA-LEWIS PRELIMINARY DATA 03/26/76 CADDEII REC 03/26/76 14:31:39.303 FAC SEX15 PGM C003 RRG 2498

LEANOUT-TO,CL,APP-25 RTDC-50 DEG.-HUM=30% MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. PARAMETRIC PRESSURE = 28.970 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	52.038	28.981	209.11	974.46	2.4508	14.706

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRCN	FPIP
	76.537	5.3537	44.739	80.579	78.614	5.9865

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	PFI-HUM	DEW-POINT
	57.312	2.9458	3.7445	9857.1	30.839	24.353

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	30.839	7.6828	17.606	0.40428	155.48

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	RHP
	0.080675	0.080472	1.2041	2704.5	2705.7	291.99	150.36

WET CORRECTION FACTOR = 0.84809 EXHAUST MOLE. WT. = 27.627 EXHAUST DENSITY = 0.071532 EXHAUST FLOW RATE = 14755.

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	1371.6	167.29	7.5496	10.275	0.024322
CORRECTED CONC. TO WET BASIS			6.4327	8.7142	0.020628

	HC	NOX	CO
EMISSION RATE	0.72661	0.29375	68.591
EMISSION MASS/MODE	0.0036330	0.0014687	0.34295
EMISSION MASS/RATED HP	2.2706E-05	9.1796E-06	0.0021435
MODE EMISS./STD. CYCLE %	1.1951	0.61197	5.1035

CAL. FUEL AIR RATIO = 0.084163 MEAS. FUEL AIR RATIO = 0.080675 DIFF MEAS. & CAL. F/A PERCENT = 4.3235

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	419.75	437.44	408.28	-67.724

FXT GAS TEMP DEG.F	FXT-1	FXT-2	FXT-3	FXT-4	SEXT-1	SEXT-2
	950.55	222.05	782.60	1118.5	1409.8	1411.9

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.070
	181.63	197.15	71.747	

GYRO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.159
	294.42	2650.6	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	51.646	52.038	103.87	49.392

CRIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	83.822	0.11731	53.269	394.02

CELL TEMP. = 84.595 HEATER TEMP = 83.371 COOLER TEMP = 43.633

NASA-LEWIS		PRELIMINARY DATA		03/26/76	CADDEIT	REC 03/26/76 14:35:08.377		FAC SEX15	PGM C003	RDG 2499
LEANOUT-TQ, CL, APP-25 RTNG-50 DEG.-HUM=30%				MODE = 4.0000		NO. SCANS = 4				
ENGINE TIMING = 25.00C		DEG.		BAROMETRIC PRESSURE = 28.970		RATED HP. = 160.00		HC RATIO = 2.1250		
COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL				
	57.591	28.952	168.27	775.95	1.8035	14.536				
COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP				
	79.154	5.4069	44.596	66.569	63.021	6.0092				
COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT				
	57.457	3.0139	3.7113	9984.1	27.610	22.663				
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP					
	27.610	18.474	16.270	0.37361	120.40					
ENG. COND.	F/A DRY	F/A WET	EQU. PATIO	RPM-1	RPM-2	TORQUE	BHP			
	0.081219	0.081030	1.2122	2435.4	2436.7	260.50	120.80			
WET CORRECTION FACTOR = 0.85855				EXHAUST MOLE. WT. = 27.584		EXHAUST DENSITY = 0.071420		EXHAUST FLOW RATE = 11772.		
MEASURED CONC.		PART PER MILLION WET		PER CENT						
HC PPM		NOX PPM		CO DRY		CO2 DRY				
1466.3		452.77		6.7671		10.665				
CORRECTED CONC. TO WET BASIS				CO DRY		CO2 DRY				
				5.8099		9.1568				
EMISSION RATE		HC		NOX		CO				
		0.61967		0.53428		49.655				
EMISSION MASS/MODE		0.051639		0.052856		4.1379				
EMISSION MASS/RATED HP		0.00032275		0.00033035		0.025862				
MODE EMIS./STD. CYCLE		16.987		22.024		61.576				
CAL. FUEL AIR RATIO = 0.082156				MEAS. FUEL AIR RATIO = 0.081219		DIFF MEAS. & CAL. F/A PERCENT = 1.1545				
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4						
	373.95	396.57	408.03	-90.840						
EXT GAS TEMP DEG.F	FXT-1	FXT-2	FXT-3	EXT-4	SFXT-1	SEXT-2				
	1723.9	-428.56	755.71	1186.6	1358.0	1360.0				
ENGINE OIL	FOILT	SOILT	OILT	MANIFOLD PRESSURE = 26.358						
	189.79	170.88	70.582							
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.116							
	268.54	2358.1								
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2						
	52.113	52.591	79.579	48.977						
CRIPICE AIR	TEMP	DELTA P	DRFP	FLOW						
	84.441	0.096010	53.280	338.48						
CELL TEMP. = 84.814	HEATER TEMP = 83.437		COOLER TEMP = 43.751							

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NASA-LEWIS PRELIMINARY DATA 03/26/76 CANDELL REC 03/26/76 16:18:33.284 FAC SFX15 PGM C003 RDG 2501

LEANOUT-TQ,CL,APP-25 RTCC-50 DEG.-HUM=30% MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. PARAMETRIC PRESSURE = 28.930 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	51.965	28.919	208.41	968.83	2.5087	14.682

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	78.245	5.3732	44.694	78.873	75.923	6.0180

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT
	57.022	3.1365	3.9488	10208.	31.781	24.868

RFL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	31.781	47.209	18.126	0.41624	156.12

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.078365	0.078163	1.1696	2705.8	2706.7	292.33	150.61

WET CORRECTION FACTOR = 0.95172 EXHAUST MOLE WT. = 27.812 EXHAUST DENSITY = 0.072012 EXHAUST FLOW RATE = 14542.

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1242.8	376.74	6.2006	10.960	0.041844
CORRECTED CONC. TO WET BASIS			5.2812	5.3346	0.035640

	HC	NOX	CO
EMISSION RATE	0.64886	0.65198	55.760
EMISSION MASS/MODE	0.0032443	0.0032599	0.27880
EMISSION MASS/RATED HP	2.0277E-05	2.0374E-05	0.0017425
MODE EMTS./STD. CYCLE %	1.0672	1.3583	4.1488

CAL. FUEL AIR RATIO = 0.080799 MEAS. FUEL AIR RATIO = 0.078365 DIFF MEAS. & CAL. F/A PERCENT = 3.1058

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	8.6336	476.90	411.55	-9.7231

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1319.0	187.72	808.88	1433.0	1397.4	1400.9

ENGINE OIL	FOILT	SOILT	OILO	MANIFOLD PRESSURE
	164.93	172.26	71.827	27.989

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	296.75	2613.2	29.044

INDUCTION AIR	IAIPT1	IAIPT2	TAIRT1	TAIRT2
	51.519	51.965	-71.341	49.760

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	84.027	0.069007	53.324	260.16

CELL TEMP. = 84.376 HEATER TEMP = 84.023 COOLER TEMP = 44.174

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NASA-LEWIS	PRELIMINARY DATA	03/26/76	CADDEII	REC 03/26/76 16:26:03.164	FAC SEX15	PGM C003	RDG 2502
LEANOUT-TO,CL,APP-25 BTDC-50 DEG.-HUM=30%		MODE = 4.0000		NO. SCANS = 5			
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 28.930		RATED HP. = 160.00		HC RATIO = 2.1250
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	53.202	28.912	166.95	766.16	2.0039	14.487	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	80.020	5.4230	44.647	63.136	60.699	5.9973	
COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	57.710	3.0048	3.9446	9967.1	70.261	24.803	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	30.261	72.011	18.308	0.42042	119.73		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.079225	0.079018	1.1825	2431.3	2431.8	259.18	119.98
WET CORRECTION FACTOR = 0.86043		EXHAUST MOLE WT. = 27.743		EXHAUST DENSITY = 0.071832		EXHAUST FLOW RATE = 11533.	
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	CO DRY		
	1247.3	878.15	5.7903	11.144	0.085949		
CORRECTED CONC. TO WET BASIS			4.9822	9.5886	0.073953		
	HC	NOX	CO				
EMISSION RATE	0.51670	1.2058	41.737				
EMISSION MASS/MODE	0.043058	0.10048	3.4781				
EMISSION MASS/RATED HP	0.00026911	0.00062802	0.021738				
MODE EMISS./STD. CYCLE %	14.154	41.868	51.757				
CAL. FUEL AIR RATIO = 0.079707		MEAS. FUEL AIR RATIO = 0.079225		DIFF MEAS. & CAL. F/A PERCENT = 0.60895			
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	263.64	391.56	404.48	-164.93			
EXT GAS TEMP DEG.F	FXT-1	FXT-2	FXT-3	FXT-4	SFXT-1	SEXT-2	
	711.28	-454.00	883.90	1339.9	1330.7	1333.5	
ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 26.308			
	181.46	221.66	72.079				
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.065				
	238.11	2349.8					
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2			
	52.702	53.202	-35.942	49.461			
ORIFICE AIR	TEMP	DELTAP	ORIF	FLOW			
	85.147	1.0512	53.207	1442.5			
CYL TEMP. = 86.262		HEATER TEMP = 84.065		COOLER TEMP = 44.294			

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NASA-LEWIS		PRELIMINARY DATA		03/26/76		CADDEII		PEC 03/26/76 16:40:54.420		FAC. SFX15		PGM C003		RDG 2504	
LEANOUT-TO,CL,APP-25 RTDC-50 DFG.-HUM=30%						MODE = 3.0000			NO. SCANS = 5						
ENGINE TIMING = 25.000			DEG.		BAROMETRIC PRESSURE = 28.920				RATED HP. = 160.00			HC RATIO= 2.1250			
COMP. AIR		TEMP		PRESS		CEM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		51.901		28.940		207.62		964.60		2.5405		14.672			
COMP. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		79.437		5.3822		44.663		79.263		75.190		6.0408			
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		57.629		3.1005		3.8657		10143.		32.376		25.173			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		32.376		41.284		18.436		0.42336		156.09					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.077950		0.077745		1.1634		2706.1		2707.6		292.47		150.70	
WET CORRECTION FACTOR = 0.84962				EXHAUST MOLE. WT. = 27.846				EXHAUST DENSITY = 0.072100				EXHAUST FLOW RATE = 14456.			
MEASURED CONC.		PART PER MILLION WET				PER CENT									
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		1203.2		457.99		6.2705		10.907		0.052185					
CORRECTED CONC. TO WET BASIS						5.3275		9.2666		0.044338					
EMISSION RATE		HC		NOX		CO									
		0.62447		0.78790		55.916									
EMISSION MASS/MODE		0.0031223		0.0039395		0.27958									
EMISSION MASS/RATED HP		1.9515E-05		2.4622E-05		0.0017474									
MODE EMIS./STD. CYCLE		1.0271		1.6415		4.1604									
CAL. FUEL AIR RATIO = 0.080923				MEAS. FUEL AIR RATIO = 0.077950				DIFF MEAS. & CAL. F/A PERCENT = 3.8136							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		-3.9753		437.73		416.78		400.89							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		1253.6		46.929		758.14		1254.6		1395.0		1398.1			
ENGINE OIL		EOILT		SOILT		OILT		MANIFOLD PRESSURE = 27.999							
		186.84		222.15		72.919									
DYNO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.067									
		297.46		2620.2											
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
		51.446		51.901		-84.227		49.664							
CPIFICE AIR		TEMP		DELTA P		CRFP		FLOW							
		84.077		2.0548		53.215		1997.6							
CELL TEMP. = 85.454				HEATER TEMP = 84.169				COOLER TEMP = 48.268							

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NASA-LEWIS		PRELIMINARY DATA		03/26/76		CANDE II		REC 03/26/76 16:44:22.397		FAC SEX15		PGM C003		H03 2505	
LEANOUT-TO CL APP-25 RTDC-50 DEG.-HUM=30%						MCDE = 4.000			NO. SCANS = 5						
ENGINE TIMING = 25.000			DEG.		BAROMETRIC PRESSURE = 21.920				RATED HP. = 160.00			HC RATIO = 2.1250			
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		53.129		28.925		167.40		768.48		1.9928		14.510			
COMP. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		80.708		5.4110		44.529		64.607		61.212		6.0282			
COOLING AIR		TEMP		INLET-HOOD		DEL-HOOD		FLOW		PFL-HUM		DEW-POINT			
		57.633		2.9345		3.7863		9835.7		30.133		24.673			
REL-HUM		1		2		HUMIDITY		H2O VAPOR		CORRECTED HP					
		30.133		55.161		19.152		0.41683		110.29					
ENG. COND.		F/A DRY		F/A WET		EQU. PATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.079653		0.079447		1.1889		2433.4		2434.3		258.04		119.56	
WET CORRECTION		STIP = 0.86173		EXHAUST MOLE. WT. = 27.703				EXHAUST DENSITY = 0.071743				EXHAUST FLOW RATE = 11592.			
MEASURED CONC.		PART PER MILLION WFT				PER CENT									
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		1282.2		853.16		5.8481		11.091		0.088969					
CORRECTED CONC. TO WFT BASIS						5.0395		9.5576		0.076667					
		HC		NOX		CO									
EMISSION RATE		0.53363		1.1770		42.413									
EMISSION MASS/MODE		0.044469		0.098079		3.5344									
EMISSION MASS/RATED HP		0.00027793		0.00061299		0.022380									
MODE EMIS./STD. CYCLE %		14.628		40.866		52.596									
CAL. FUEL AIR PATIO = 0.079870				MEAS. FUEL AIR PATIO = 0.079653				DIFF MEAS. & CAL. F/A PERCENT = 0.27275							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		-94.084		397.74		409.58		193.90							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		1416.9		-454.00		732.20		1187.9		1336.6		1339.2			
ENGINE OIL		FOILT		SOILT		OILP		MANIFOLD PRESSURE = 26.401							
		187.57		191.92		71.599									
DYNO COND.		TORQUE		RPM		CYL. RACK PRESSURE = 29.099									
		266.42		2355.6											
INDUCTION AIR		TAIPT1		TAIPT2		TAIRT1		TAIRT2							
		52.611		53.129		-4.2124		50.151							
ORIFICE AIR		TEMP		DELTA P		ORFP		FLOW							
		84.639		1.0656		53.271		1452.8							
CELL TEMP. = 86.173				HEATER TEMP = 84.190				COOLER TEMP = 44.393							



NASA-LEWIS		PRELIMINARY DATA		03/26/76		CADDEII		REC 03/26/76 16:52:19.208		FAC SEX15		PGM C003		RDG 2507	
LEANOUT-TQ,CL,APP-25 PTDC-50 DEG.-HUM=30%				MODE = 3.0000				NO. SCANS = 5							
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 28.920				RATED HP. = 160.00		HC RATIO = 2.1250					
COMB. AIR		TEMP		PRESS		CFM		DPY FLOW		VAPOR FLOW		PRESS TOTAL			
		54.084		28.934		207.32		962.68		2.3545		14.673			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRDN		FPIP			
		81.694		5.3915		44.604		75.527		73.399		6.0705			
COOLING AIR		TEMP		UNFL-HOOD		DFL-HOOD		FLOW		RFL-HUM		DEW-POINT			
		59.816		2.8774		3.7399		9727.9		27.758		23.788			
RFL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		27.758		44.404		17.120		0.39314		156.02					
ENG. COND.		F/A DRY		F/A WET		EQV. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.076245		0.076059		1.1380		2703.9		2705.4		291.91		150.29	
WET CORRECTION FACTOR = 0.85363				EXHAUST MLE. WT. = 27.986				EXHAUST DENSITY = 0.072462				EXHAUST FLOW RATE = 14330.			
MEASURED CONC.		PART PER MILLION WET		PER CENT											
		HC PPM		NOX PPM		CO DRY		CO2 DRY		CO DRY					
		1376.9		722.13		5.1775		11.469		0.053785					
CORRECTED CONC. TO WET BASIS				4.4196		9.7901		0.045913							
EMISSION RATE		HC		NOX		CO									
		0.55404		1.2315		45.982									
EMISSION MASS/MODE		0.0027702		0.0061574		0.22991									
EMISSION MASS/RATED HP		1.7314E-05		3.8484E-05		0.0014369									
MODE EMISS./STD. CYCLE %		0.91124		2.5656		3.4213									
CAL. FUEL AIR RATIO = 0.078326				MEAS. FUEL AIR RATIO = 0.076245				DIFF MEAS. & CAL. F/A PERCENT = 2.7291							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		-195.15		438.83		422.96		574.37							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		1561.0		200.70		914.22		1224.2		1410.8		1414.3			
ENGINE OIL		FOILT		SOILT		OILP		MANIFOLD PRESSURE = 27.973							
		189.93		207.31		73.031									
DYNO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.088									
		289.76		2670.7											
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
		53.611		54.084		10.578		50.107							
ORIFICE AIR		TEMP		DEL TAP		ORIF		FLOW							
		85.858		1.1242		53.203		1490.0							
CELL TEMP. = 82.232				HEATED TEMP = 84.245				COOLER TEMP = 44.439							

NASA-LEWIS PRELIMINARY DATA 03/26/76 CADDEII REC 03/26/76 16:55:37.194 FAC SEX15 PGM C003 R06 2500

LEANOUT-TQ,CL,APP-25 RTDC-50 DEG.-HUM=30% MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. PARAMETRIC PRESSURE = 28.920 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	54.565	28.925	167.27	767.77	1.9645	14.495

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIF
	82.935	5.4341	44.571	58.085	58.296	6.0378

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	59.644	2.8426	3.7744	9661.4	28.183	24.403

PFL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	29.183	67.325	17.911	0.41129	119.16

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.075928	0.075735	1.1333	2431.6	2432.5	257.56	119.24

WET CORRECTION FACTOR = 0.85660 EXHAUST MOLF. WT. = 28.012 EXHAUST DENSITY = 0.072530 EXHAUST FLOW RATE = 11416.

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	1172.3	1155.1	4.8508	11.569	0.11435
CORRECTED CONC. TO WET BASIS			4.1638	9.9103	0.097953

EMISSION RATE	HC	NOX	CO
EMISSION MASS/MODE	0.48047	1.5693	34.510
EMISSION MASS/RATED HP	0.040039	0.13077	2.8759
MODE EMIS./STD. CYCLE %	0.00025025	0.00081733	0.017974
	13.171	54.489	42.796

CAL. FUEL AIR RATIO = 0.077498 MEAS. FUEL AIR RATIO = 0.075928 DIFF MEAS. & CAL. F/A PERCENT = 2.0671

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	-8.1138	409.00	415.79	444.95

EXT GAS TEMP DEG. F	FXT-1	FXT-2	FXT-3	FXT-4	SFXT-1	SEXT-2
	1723.9	-412.30	812.66	1257.4	1354.8	1357.7

ENGINE OIL	EOILT	SOILT	OILT	MANIFOLD PRESSURE
	187.76	206.04	71.315	26.333

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	250.00	2351.6	29.065

INDUCT ION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	54.048	54.565	70.171	49.709

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	86.427	4.6942	53.366	2967.6

CELL TEMP. = 88.203 HEATER TEMP = 84.294 COOLER TEMP = 44.294

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NASA-LEWIS		PRELIMINARY DATA		03/26/76		CANDEII		REC 03/26/76 17:42:13.550		FAC SFX15		PGM C003		RDG 2511					
LEANOUT-TO,CL,APP-25 BTDC-50 DEG.-HUM=30%				MODE = 3.0000				NO. SCANS = 5											
ENGINE TIMING = 25.000				DEG.				BAROMETRIC PRESSURE = 29.920				RATED HP. = 160.00				HC RATIO = 2.1250			
COMP. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL							
		53.757		28.930		208.30		968.93		2.3865		14.676							
COMP. FUEL		TEMP		PRESS		DENSITY		THRO FLOW		FLOW TRON		FPIP							
		87.521		5.3999		44.582		76.409		77.939		6.0102							
COOLING AIR		TEMP		INLET-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT							
		58.605		3.1085		3.9474		10157.		28.295		23.923							
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP									
		28.295		36.024		17.241		0.39591		157.25									
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP					
		0.076310		0.076122		1.1390		2704.9		2706.0		294.16		151.50					
WET CORRECTION FACTOR = 0.85570				EXHAUST MOLE. WT. = 27.980				EXHAUST DENSITY = 0.072448				EXHAUST FLOW RATE = 14427.							
MEASURED CONC.		PART PER MILLION WET				PER CENT		CO DRY		CO2 DRY		O2 DRY							
		HC PPM				NOX PPM		5.0984		11.462		0.098070							
		1103.6				802.68		4.3542		9.8079		0.083918							
CORRECTED CONC. TO WET BASIS																			
EMISSION RATE		HC		NOX		CO		45.608											
		0.57162		1.3798		0.0068991		0.22804											
EMISSION MASS/MODE		0.0028581		0.0068991		4.3120F-05		0.0014252											
EMISSION MASS/RATED HP		1.7863F-05		0.0068991		4.3120F-05		0.0014252											
MODE EMTS./STD. CYCLE		0.94015		2.9746		3.3934													
CAL. FUEL AIR RATIO = 0.078024				MEAS. FUEL AIR RATIO = 0.076310				DIFF MEAS. & CAL. F/A PERCENT = 2.2466											
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4											
		-123.24		428.36		411.23		-189.35											
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2							
		1096.7		146.30		963.40		1334.4		1392.1		1396.2							
ENGINE OIL		FOILT		SOILT		OILP		MANIFOLD PRESSURE = 28.036											
		177.30		237.37		73.243													
DYMO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.117													
		292.29		2642.0															
INDUCTION AIR		IAIRT1		IAIPT2		TAIRT1		TAIPT2											
		53.275		53.757		-78.322		49.307											
ORIFICE AIR		TEMP		DELTA P		ORIF		FLOW											
		96.550		4.6523		53.313		2954.9											
CELL TEMP. = 87.565				HEATED TEMP = 84.509				COOLER TEMP = 43.204											

NASA-LEWIS		PRELIMINARY DATA		03/26/76		CADDEII		REC 03/26/76 17:47:58.643		FAC SEX15		PGM C003		RDG 2512			
LEANOUT-TO,CL,APP-25 BTDC-50 DEG.-HUM=30%								MODE = 4.0000		NO. SCANS = 5							
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 28.920				RATED HP. = 160.00		HC RATIO = 2.1250					
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL					
		51.992		28.900		167.69		769.81		1.9215		14.498					
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP					
		80.743		5.4119		44.629		61.437		58.401		5.9502					
COOLING AIR		TEMP		INLET-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT					
		55.935		3.1005		3.9189		10143.		30.223		23.943					
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP							
		30.223		68.155		17.472		0.40122		119.55							
ENG. COND.		F/A DRY		F/A WET		EQUI. RATIO		RPM-1		RPM-2		TORQUE		BHP			
		0.075864		0.075675		1.1323		2434.5		2435.2		258.88		120.00			
WET CORRECTION F. OR = 0.85648								EXHAUST MOLE. WT. = 28.017				EXHAUST DENSITY = 0.072544				EXHAUST FLOW RATE = 11443.	
MEASURED CONC.		PART PER MILLION WET				CO DRY		PER CENT		O2 DRY							
		HC PPM				NOX PPM		CO2 DRY		O2 DRY							
		1211.9				1161.9		4.9297		11.487		0.15566					
CORRECTED CONC. TO WET BASIS						4.2222		9.8382		0.13332							
EMISSION RATE		HC		NOX		CO											
		0.49783		1.5922		35.077											
EMISSION MASS/MODE		0.041485		0.13135		2.9231											
EMISSION MASS/RATED HP		0.00025928		0.00082407		0.018269											
MODE EMIS./STD. CYCLE %		13.647		54.938		43.498											
CAL. FUEL AIR RATIO = 0.077566				MEAS. FUEL AIR RATIO = 0.075864				DIFF MEAS. & CAL. F/A PERCENT = 2.2433									
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4									
		-117.77		397.74		406.45		-285.74									
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2					
		1208.2		-454.00		823.29		1270.8		1343.8		1346.8					
ENGINE OIL		FOILT		SOILT		CILP		MANIFOLD PRESSURE = 26.346									
		188.83		194.36		71.843											
DYNO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.063											
		260.98		2356.5													
INDUCTION AIR		IAIPT1		IAIPT2		TAIRT1		TAIRT2									
		51.464		51.992		-9.2061		49.768									
ORIFICE AIR		TEMP		DELTA P		ORIF		FLOW									
		84.287		4.6711		53.243		2966.6									
CELL TEMP. = 85.788				HEATER TEMP = 84.592				COOLER TEMP = 43.778									

NASA-LEWIS		PRELIMINARY DATA		03/26/76	CADDEII	REF 03/26/76 18:06:03.691		FAC SFX15	PGM C003	RDG 2514	
LEAN CUT-TO, CL, APP-25 BTDC-50 DEG.-HUM=30%				MODE = 3.0000		NO. SCANS = 5					
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 28.920			RATED HP. = 160.00		HC RATIO = 2.1250			
COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL					
	54.066	28.893	206.90	961.91	2.4618	14.678					
COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP					
	82.803	5.4041	44.575	72.238	71.086	6.0342					
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT					
	59.157	3.0717	3.8776	10090.	29.071	24.643					
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP						
	29.071	50.707	17.915	0.41139	155.25						
ENG. COND.	F/A DRY	F/A WET	EQN. RATIO	RPM-1	RPM-2	TORQUE	RHP				
	0.073901	0.073712	1.1030	2707.5	2709.1	289.53	149.26				
WET CORRECTION FACTOR = 0.85193		EXHAUST MOLE. WT. = 28.182		EXHAUST DENSITY = 0.072969		EXHAUST FLOW RATE = 14190.					
MEASURED CONC.	PART PER MILLION WET		PER CENT		184						
	HC PPM	NOX PPM	CO DRY	CO2 DRY							O2 DRY
	994.00	671.03	4.3809	11.763							0.063046
CORRECTED CONC. TO WET BASIS			3.7324	10.022	0.053714						
EMISSION RATE		HC	NOX	CO							
		0.50740	1.1331	38.452							
EMISSION MASS/MODE		0.0025370	0.0056657	0.19226							
EMISSION MASS/RATED HP		1.5856E-05	3.5410E-05	0.0012016							
MODE EMIS./STD. CYCLE %		0.83453	2.3607	2.8610							
CAL. FUEL AIR RATIO = 0.076551		MEAS. FUEL AIR RATIO = 0.073901		DIFF MEAS. & CAL. F/A PERCENT = 3.5863							
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4							
	-118.65	451.50	435.15	-251.72							
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2					
	624.51	303.70	1027.9	1329.1	1458.5	1461.1					
ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.111							
	198.87	205.16	73.031								
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.106								
	297.38	2638.0									
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2							
	53.593	54.066	115.48	49.571							
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW							
	86.733	4.6525	53.317	2954.5							
CELL TEMP. = 88.602		HEATER TEMP = 84.668		COOLER TEMP = 43.624							

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NASA-LEWIS PRELIMINARY DATA 03/26/76 CADDEII REC 03/26/76 18:10:18.054 FAC SEX15 PGM C003 R06 2515

LEAMOUT-TO,CL,APP-25 RTDC-50 DEG.-HUM=30% MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.920 RATED HP. = 160.00 HC RATIO= 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	52.165	28.943	166.99	766.88	1.9690	14.484

COMP. FUFL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	81.677	5.4425	44.604	57.491	57.084	6.0192

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	PFL-HUM	DEW-POINT
	56.859	3.0875	3.8563	10119.	30.858	24.453

PFL-HUM	1	2	HUMIDITY	2 H2O VAPOR	CORRECTED HP
	30.859	69.101	17.973	0.41271	118.65

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	8HP
	0.074437	0.074246	1.1110	2431.7	2432.2	257.16	119.06

WET CORRECTION F<sub>W</sub> = 0.85763 EXHAUST MOLE. WT. = 28.137 EXHAUST DENSITY = 0.072852 EXHAUST FLOW RATE = 11337.

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	1093.8	1255.0	4.2125	11.830	0.14405
CORRECTED CONC. TO WET BASIS			3.6128	10.146	0.12355

	HC	NOX	CO
EMISSION RATE	0.44518	1.6932	29.736
EMISSION MASS/MODE	0.037098	0.14110	2.4780
EMISSION MASS/RATED HP	0.00023126	0.00088185	0.015487
MODE EMIS./STD. CYCLE %	12.203	58.790	36.875

CAL. FUEL AIR RATIO = 0.075958 MEAS. FUEL AIR RATIO = 0.074427 DIFF MEAS. & CAL. F/A PERCENT = 2.0433

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	-40.101	404.20	410.01	31.642

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1665.6	-421.98	1065.3	1332.8	1374.8	1377.1

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 26.479
	197.58	200.54	71.583	

DYNO COND.	TORQUE	PPM	CYL. BACK PRESSURE = 29.067
	252.10	2348.5	

INDUCTION AIR	TAIPT1	TAIPT2	TAIRT1	TAIRT2
	51.628	52.165	103.27	49.050

PRIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	85.077	4.6811	53.330	2967.4

CFL TEMP. = 87.190 HEATED TEMP = 94.632 COOLER TEMP = 43.551

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NASA-LEWIS PRELIMINARY DATA 03/26/76 CADDEII REC 03/26/76 18:24:37.066 FAC SEX15. PGM C003 PDG 2517

LEANOUT-TO,CL,APP-25 RTDC-50 DEG.-HUM=30% MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.920 RATED HP. = 160.00 HC RATIO = 2.1250

COND. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	52.893	28.905	206.75	961.50	2.4308	14.669

COND. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	82.345	5.4188	44.587	73.152	71.725	5.9853

COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	58.389	3.2015	3.8513	10325.	29.962	24.403

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	29.962	0.91609	17.697	0.40639	155.57

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.074597	0.074409	1.1134	2700.9	2702.0	291.41	149.86

WET CORRECTION FACTOR = 0.85544 EXHAUST MOLE. WT. = 28.123 EXHAUST DENSITY = 0.072818 EXHAUST FLOW RATE = 14222.

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	1018.7	899.39	4.3686	11.785	0.073037
CORRECTED CONC. TO WET BASIS			3.7370	10.081	0.067453

	HC	NOX	CO
EMISSION RATE	0.52014	1.5053	38.587
EMISSION MASS/MODE	0.0026007	0.0075264	0.19294
EMISSION MASS/RATED HP	1.6254E-05	4.7040E-05	0.0012058
MODE EMISS./STD. CYCLE %	0.85549	3.1360	2.8711

CAL. FUEL AIR RATIO = 0.076488 MEAS. FUEL AIR RATIO = 0.074597 DIFF MEAS. & CAL. F/A PERCENT = 2.5350

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	-236.80	446.22	431.04	-134.86

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1334.9	132.34	1052.5	1273.1	1437.8	1440.5

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE =
	190.40	212.16	72.855	28.060

DYNO COND.	TORQUE	RPM	CYL. RACK PRESSURE =
	296.19	2638.9	29.082

INDUCTION AIR	IAIRT1	IAIPT2	TAIRT1	TAIRT2
	52.393	52.893	120.68	49.151

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	85.989	4.6445	53.355	2454.2

CELL TEMP. = 38.36 HEATER TEMP = 84.675 COOLER TEMP = 43.542

NASA-LEWIS PRELIMINARY DATA 03/26/76 CADDEII REC 03/26/76 18:33:34.826 FAC SEX15 PGM C003 RDG 2519

LEANOUT-TO,CL,APP-25 BTDC-50 DEG.-HUM=30% MODE = 4.0030 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.920 RATED HP. = 160.00 HC RATIO= 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	54.238	28.935	166.82	766.80	1.9219	14.503

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FIP
	83.655	5.4140	44.553	60.904	57.831	6.0405

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	58.560	3.1049	3.8314	10151.	27.958	24.328

REL-HUM	1	2	HUMIDITY	H2O VAPOR CORRECTED HP
	27.958	12.707	17.545	0.40289 118.55

ENG. COND.	F/A DRY	F/A WET	EOU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.075418	0.075229	1.1256	2430.7	2431.6	256.45	118.69

WET CORRECTION FACTOR = 0.86238 EXHAUST MOLE WT. = 28.054 EXHAUST DENSITY = 0.072640 EXHAUST FLOW RATE = 11378.

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	1095.0	1320.2	4.2451	11.745	0.16030
CORRECTED CONC. TO WET BASIS			3.6609	10.129	0.13824

	HC	NOX	CO
EMISSION RATE	0.44731	1.7877	30.243
EMISSION MASS/MODE	0.037276	0.14897	2.5202
EMISSION MASS/RATED HP	0.00023297	0.00093109	0.015751
MODE EMISS./STD. CYCLE %	12.262	62.073	37.503

CAL. FUEL AIR RATIO = 0.076017 MEAS. FUEL AIR RATIO = 0.075413 DIFF MEAS. & CAL. F/A PERCENT = 0.79404

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	323.89	400.72	410.59	18.129

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1545.5	454.00	903.74	1243.3	1359.8	1362.2

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 26.307
	187.77	190.77	71.907	

DYAD COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.087
	260.57	2321.1	

INDUCTION AIR	TAIPT1	TAIPT2	TAIRT1	TAIRT2
	53.757	54.238	33.556	49.325

ORIFICE AIR	TEMP	DELTA P	ORFD	FLOW
	87.022	4.6605	53.277	2956.1

CFLT TEMP. = 89.512 HEATER TEMP = 84.675 COOLER TEMP = 43.434



NASA-LE-15 PRELIMINARY DATA 03/26/76 CANDELL REC 03/26/76 18:51:05.812 FAC SEX15 PGM C003 RDG 2521  
 LEANOUT-TO,CL,APP-25 RTDC-50 DEG.-HUM=30% MODE = 3.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.920 RATED HP. = 160.00 HC RATIO = 2.1250  
 COMB. AIR TEMP 53.384 PRESS 28.929 CFM 207.10 DRY FLOW 962.84 VAPOR FLOW 2.4157 PRESS TOTAL 14.668  
 COMB. FUEL TEMP 82.908 PRESS 5.4209 DENSITY 44.572 TURBO FLOW 71.369 FLOW FROM 67.444 FPIP 5.9997  
 COOLING AIR TEMP 58.578 UDEL-HOOD 3.0335 DEL-HOOD 4.0761 FLOW 10020. REL-HUM 29.201 DEW-POINT 24.258  
 REL-HUM 1 29.201 2 19.158 HUMIDITY 17.562 % H2O VAPOR CORRECTED HP 0.40329 152.71  
 ENG. COND. F/A DRY 0.070046 F/A WET 0.069871 EQU. RATIO 1.0455 RPM-1 2707.2 PPM-2 2709.0 TORQUE 285.49 BHP 147.16  
 WFT CORRECTION FACTOR = 0.86533 EXHAUST MOLE WT. = 28.512 EXHAUST DENSITY = 0.073825 EXHAUST FLOW RATE = 13988.  
 MEASURED CONC. PART PER MILLION WET HC PPM 763.88 NOX PPM 2101.0 CO DRY 1.8976 PER CENT CO2 DRY 12.886 O2 DRY 0.20294  
 CORRECTED CONC. TO WET BASIS 1.6421 11.151 0.17561  
 EMISSION RATE HC 0.38361 NOX 3.4974 CO 16.676  
 EMISSION MASS/MODE 0.0019180 0.017487 0.083382  
 EMISSION MASS/RATED HP 1.1988E-05 0.00010929 0.00052114  
 MODE EMIS./STD. CYCLE 7 0.63093 7.2862 1.2408  
 CAL. FUEL AIR RATIO = 0.070642 MEAS. FUEL AIR RATIO = 0.070046 DIFF MEAS. & CAL. F/A PERCENT = 0.85051  
 CYL TEMP DEG.F CYL-1 -146.71 CYL-2 444.85 CYL-3 441.57 CYL-4 -251.88  
 EXT GAS TEMP DEG.F EXT-1 1080.6 EXT-2 479.36 EXT-3 1209.4 EXT-4 1349.0 SEXT-1 1498.8 SEXT-2 1501.2  
 ENGINE OIL FOILT 189.48 SOILT 252.75 OILP 73.255 MANIFOLD PRESSURE = 28.078  
 DYNO COND. TORQUE 291.38 RPM 2638.2 CYL. RACK PRESSURE = 29.080  
 INDUCTION AIR TAIRT1 52.847 TAIRT2 53.384 TAIRT1 -50.805 TAIRT2 49.256  
 ORIFICE AIR TEMP 86.164 DELTAP 4.6458 CRFP 53.263 FLOW 2954.1  
 CELL TEMP. = 83.605 HEATER TEMP = 84.612 COOLER TEMP = 43.298

NASA-LEWIS PRELIMINARY DATA 03/26/76 CADDEII REC 03/26/76 18:55:18.069 FAC SEX15 PGH C003 RDG 2522

LEANOUT-TO, CL, APP-25 BTDC-50 DEG.-HUM=30% MCDE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.920 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	54.284	28.917	173.99	800.51	2.0010	14.519

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	83.813	5.4224	44.549	57.840	55.280	6.0390

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	58.298	3.0903	3.8832	10124.	27.867	23.998

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	27.867	10.577	17.497	0.40180	119.56

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.069056	0.068884	1.0307	2431.8	2432.8	258.50	119.69

WET CORRECTION FACTOR = 0.86075 EXHAUST MOLE. WT. = 28.532 EXHAUST DENSITY = 0.073875 EXHAUST FLOW RATE = 11611.

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	566.56	1973.4	2.6244	12.292	0.61124
CORRECTED CONC. TO WET BASIS			2.2590	10.580	0.52612

	HC	NOX	CO
EMISSION RATE	0.23617	2.7267	19.043
EMISSION MASS/MODE	0.015681	0.22723	1.5869
EMISSION MASS/WATER HP	0.00012300	0.0014202	0.0095181
MODE EMISS./STD. CYCLE %	6.4739	94.678	23.615

CAL. FUEL AIR RATIO = 0.070907 MEAS. FUEL AIR RATIO = 0.069056 DIFF MEAS. & CAL. F/A PERCENT = 2.5345

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	-346.00	414.77	404.15	80.112

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1797.5	-250.22	614.04	1276.2	1434.4	1436.2

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 26.931
	187.65	192.60	71.819	

DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.080
	264.09	2366.3	

INDUCTION AIR	TAIPT1	TAIPT2	TAIRT1	TAIRT2
	53.757	54.284	3.2079	49.410

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	86.794	4.5489	53.351	2923.2

CFL TEMP. = 88.797 WATER TEMP = 84.619 COOLER TEMP = 43.262

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NASA-LEWIS PPFLIMINARY DATA 03/26/76 CADDF11 REC 03/26/76 19:02:31.210 FAC SEX15 PGM C003 RDG 2524  
 LEANOUT-TO,CL,APP-25 RTDC-50 DEG.-HUM=30% MCDE = 3.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.920 RATED HP. = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	51.528	28.937	207.35	963.92	2.4192	14.667
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIB
	P1.201	5.4269	44.617	69.025	66.583	6.0666
COOLING AIR	TEMP	INFL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	55.560	3.1393	3.7426	10213.	31.274	24.263
REL-HUM	1	2	HUMIDITY	H2O VAPOR	CORRECTED HP	
	31.274	3.2663	17.568	C.40343	153.59	
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE
	0.069075	0.068902	1.0310	2707.2	2707.9	287.81
						BHP
						148.35
WET CORRECTION FACTOR = 0.86080			EXHAUST MOLE WT. = 28.530		EXHAUST DENSITY = 0.073871	
			EXHAUST FLOW RATE = 13982.			
MEASURED CONC.	PART PER MILLION WET		PER CENT			
	HC PPM	NOX PPM	CO DRY	CO2 DRY	CO2 DRY	
	747.99	2150.9	1.9039	12.889	0.21294	
CORRECTED CONC. TO WET BASIS			1.6389	11.095	0.18330	
EMISSION RATE	HC	NOX	CO			
	0.38551	3.5790	16.637			
EMISSION MASS/MODE	0.0019275	0.017895	0.093186			
EMISSION MASS/RATED HP	1.2047E-05	0.00011184	0.00051991			
MODE EMTS./STD. CYCLE %	0.63406	7.4562	1.2379			
CAL. FUEL AIR RATIO = 0.070625			MEAS. FUEL AIR RATIO = 0.069075		DIFF MEAS. & CAL. F/A PERCENT = 2.2443	
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4		
	62.885	432.54	434.93	13.696		
EXT GAS TEMP DEG.F	FXT-1	FXT-2	FXT-3	FXT-4	SEXT-1	SEXT-2
	1405.9	400.54	1219.8	1404.2	1492.1	1494.1
ENGINE OIL	FOILT	SOILT	OILT	MANIFOLD PRESSURE = 28.091		
	188.63	207.11	73.203			
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.086			
	279.62	2630.8				
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2		
	51.054	51.528	100.26	49.270		
ORIFICE AIR	TEMP	DELTA P	PPPO	FLOW		
	84.551	4.6381	53.410	2956.1		
CFL TEMP. = 84.973	HEATER TEMP = 84.675		COOLER TEMP = 43.244			

NASA-LEWIS PRELIMINARY DATA 03/26/76 CADDEII RFC 03/26/76 19:10:07.745 FAC SEX15 PGM C003 RDG 2525

LEANOUT-TQ,CL,APP-25 RTDC-50 DEG.-HUM=30% MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.920 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DPY FLOW	VAPOR FLOW	PRESS TOTAL
	52.920	28.867	175.08	806.15	2.0131	14.530

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	82.354	5.4296	44.587	58.597	55.593	6.0516

COOLING AIR	TEMP	INDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	56.932	3.0800	3.8714	10105.	29.286	23.993

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	29.286	8.1788	17.480	0.40141	119.79

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.068960	0.068789	1.0293	2433.6	2434.9	259.21	120.11

WET CORRECTION F<sub>W</sub> TOR = 0.85983 EXHAUST MOLE. WT. = 28.540 EXHAUST DENSITY = 0.073897 EXHAUST FLOW RATE = 11688.

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	574.86	1987.3	2.6997	12.254	0.63702
CORRECTED CONC. TO WET BASIS			2.3213	10.536	0.54773

	HC	NOX	CO
EMISSION RATE	0.24122	2.7587	19.698
EMISSION MASS/MODE	0.020102	0.22989	1.6415
EMISSION MASS/RATED HP	0.00012564	0.0014368	0.010259
MODE EMISS./STD. CYCLE %	6.6124	95.786	24.427

CAL. FUEL AIR RATIO = 0.070888 MEAS. FUEL AIR RATIO = 0.068960 DIFF MEAS. & CAL. F/A PERCENT = 2.7960

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	246.38	410.36	397.49	-7.2357

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1501.7	-197.42	322.56	1272.2	1433.9	1436.0

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	187.57	195.90	71.943	26.953

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	264.20	2376.0	29.067

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	52.411	52.920	139.73	49.362

ORIFICE AIR	TEMP	DELTAP	ORIF	FLOW
	85.493	4.6285	53.139	2950.7

CELL TEMP. = 87.897 HEATER TEMP = 84.689 COOLER TEMP = 43.171

NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDEII REC 03/31/76 22:20:45.532 FAC SEX15 PGM C003 RDG 2703

LEANOUT 25 BTDC I & T 59 DEG. HUM=0% MCDE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.960 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	60.375	28.957	15.047	67.231	0.023052	14.225

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	73.431	5.6988	44.821	8.9362	7.5067	6.1329

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	65.287	-0.026015	0.97751	0.00000	3.0172	-11.180

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	3.0172	47.331	2.4001	0.055114	0.81301

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.11166	0.11162	1.6665	612.12	612.42	6.9674	0.81204

WET CORRECTION FACTOR = 0.90972 EXHAUST MOLE. WT. = 25.511 EXHAUST DENSITY = 0.066055 EXHAUST FLOW RATE = 1131.8

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	42356.	4.3934	11.1900	5.4321	3.5415
CORRECTED CONC. TO WET BASIS			10.180	4.9417	3.2217

	HC	NOX	CO
EMISSION RATE	1.7210	0.00059173	8.3648
EMISSION MASS/MODE	0.028683	9.8671E-06	0.13941
EMISSION MASS/RATED HP	0.00017927	6.1438E-08	0.00087133
MODE EMIS./STD. CYCLE %	9.4353	0.0041092	2.0746

CAL. FUEL AIR RATIO = 0.10835 MEAS. FUEL AIR RATIO = 0.11166 DIFF MEAS. & CAL. F/A PERCENT = -2.9595

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	234.60	260.68	234.11	179.95

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	763.45	871.43	541.54	493.45	727.79	720.14

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 13.098
	144.95	403.90	47.137	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 28.858
	6.7975	603.96	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	59.662	60.375	89.379	55.693

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	85.919	0.070807	52.626	265.25

CELL TEMP. = 77.316 HEATER TEMP = 84.800 COOLER TEMP = 56.846

NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDEII REC 03/31/76 22:24:19.563 FAC SEX15 PGM C003 RDG 2704

LEANOUT 25 BTDC I & T 59 DEG. HUM=0% MCDE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.960 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	60.664	28.965	21.752	97.228	0.029135	14.227

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	73.512	5.6700	44.818	11.674	10.147	6.1227

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	67.008	-0.0083027	1.0102	0.00000	2.6105	-13.350

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	2.6105	12.475	2.0976	0.048168	1.4805

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10436	0.10433	1.5577	1208.3	1207.6	6.4256	1.4783

WET CORRECTION FACTOR = 0.86998 EXHAUST MOLE. WT. = 25.947 EXHAUST DENSITY = 0.067182 EXHAUST FLOW RATE = 1598.7

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM	CO DRY
	15688.	12.9820
	NOX PPM	CO2 DRY
	8.7999	6.7022
		C2 DRY
		0.43104
CORRECTED CONC. TO WET BASIS		
		11.294
		5.8307
		0.37500

EMISSION RATE	HC	NOX	CO
	0.90041	0.0016741	13.109
EMISSION MASS/MODE	0.16508	0.00030692	2.4033
EMISSION MASS/RATED HP	0.0010317	1.9183E-06	0.015020
MODE EMIS./STD. CYCLE %	54.301	0.12788	35.763

CAL. FUEL AIR RATIO = 0.10818 MEAS. FUEL AIR RATIO = 0.10436 DIFF MEAS. & CAL. F/A PERCENT = 3.6570

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	328.47	346.46	332.18	231.66

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1126.2	1066.7	733.64	637.83	814.20	811.73

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 8.9511
	153.93	250.13	53.473	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.027
	6.6463	1210.3	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIPT2
	60.042	60.664	177.89	55.588

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	86.497	1.0970	53.639	1471.3

CELL TEMP. = 78.165 HEATER TEMP = 84.800 COOLER TEMP = 52.239

NASA-LEWIS		PRELIMINARY DATA		04/01/76	CADDEII	REC 03/31/76 22:26:21.314	FAC SEX15	PGM C003	RDG 2705
LEANOUT 25 BTDC I & T 59 DEG. HUM=0%				MCDE = 6.0000		NO. SCANS = 5			
ENGINE TIMING = 25.000		DEG.		BARGOMETRIC PRESSURE = 28.960		RATED HP. = 160.00		HC RATIO = 2.1250	
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL			
	60.691	28.960	21.404	95.669	0.028029	14.228			
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP			
	73.885	5.6775	44.809	11.311	9.8620	6.1230			
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT			
	67.599	-0.023524	1.0763	0.00000	2.5501	-13.705			
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP				
	2.5501	12.457	2.0508	0.047094	1.5086				
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP		
	0.10308	0.10305	1.5386	1198.5	1200.0	6.6007	1.5063		
WET CORRECTION FACTOR = 0.86580		EXHAUST MOLE. WT. = 26.027		EXHAUST DENSITY = 0.067390		EXHAUST FLOW RATE = 1566.4			
MEASURED CONC.	PART PER MILLION WET		PER CENT						
	HC PPM	NOX PPM	CO DRY	CC2 DRY	C2 DRY				
	15209.	9.2399	13.0090	6.7394	0.38096				
CORRECTED CONC. TO WET BASIS			11.263	5.8349	0.32983				
EMISSION RATE	HC	NOX	CO						
	0.85528	0.0017223	12.808						
EMISSION MASS/MODE	0.042764	8.6116E-05	0.64040						
EMISSION MASS/RATED HP	0.00026727	5.3822E-07	0.0040025						
MODE EMIS./STD. CYCLE %	14.067	0.035882	9.5298						
CAL. FUEL AIR RATIO = 0.10810		MEAS. FUEL AIR RATIO = 0.10308		DIFF MEAS. & CAL. F/A PERCENT = 4.8685					
CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4					
	340.57	356.33	347.32	245.93					
EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2			
	1239.9	135.92	607.64	715.47	836.47	835.54			
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 8.9088					
	157.33	249.75	52.649						
DYNO COMD.	TORQUE	RPM	CYL. BACK PRESSURE = 28.955						
	8.7993	1190.3							
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2					
	60.105	60.691	88.414	55.661					
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW					
	86.838	1.0263	53.349	1423.3					
CELL TEMP. = 78.633	HEATER TEMP = 84.682		COOLER TEMP = 58.382						

NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDEII REC 03/31/76 22:29:44.619 FAC SEX15 PGM C003 RDG 2706

LEANOUT 25 BTDC I & T 59 DEG. HUM=0% MCDE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.970 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	58.461	28.963	14.351	64.231	0.021596	14.229

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	72.346	5.7051	44.849	3.9792	7.1137	6.1290

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	65.458	-0.023801	0.97529	0.00000	3.1690	-11.495

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	3.1690	24.080	2.3536	0.054046	0.75490

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	RHP
	0.11075	0.11072	1.6530	604.14	605.40	6.5673	0.75544

WET CORRECTION FACTOR = 0.90705 EXHAUST MOLE. WT. = 25.563 EXHAUST DENSITY = 0.066189 EXHAUST FLOW RATE = 1078.2

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	42483.	5.1645	11.2950	5.2262	3.6240
CORRECTED CONC. TO WET BASIS			10.245	4.7404	3.2871

	HC	NOX	CO
EMISSION RATE	1.6444	0.00066264	8.0198
EMISSION MASS/MODE	0.027407	1.1044E-05	0.13366
EMISSION MASS/RATED HP	0.00017129	6.9025E-08	0.00083540
MODE EMIS./STD. CYCLE %	9.0155	0.0046017	1.9890

CAL. FUEL AIR RATIO = 0.10908 MEAS. FUEL AIR RATIO = 0.11075 DIFF MEAS. & CAL. F/A PERCENT = -1.5087

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	283.40	308.21	289.97	236.02

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1550.3	907.05	505.05	711.14	788.57	783.98

ENGINE OIL	EQILT	SOILT	OILP	MANIFOLD PRESSURE =
	160.08	316.98	45.617	12.988

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE =
	10.398	592.44	29.163

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	57.701	58.461	66.506	54.985

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	84.463	1.0181	53.528	1420.8

CELL TEMP. = 76.138 HEATER TEMP = 84.619 COOLER TEMP = 51.799

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NASA-LEWIS		PRELIMINARY DATA		04/01/76	CADDELL	REC 03/31/76 22:39:23.489		FAC SEX15	PGM C003	RDG 2708
LFANOUT 25 BTDC I & T 59 DEG. HUM=0%						MODE = 1.0000	NO. SCANS = 5			
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 28.950		RATED HP. = 160.00		HC RATIO = 2.1250		
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL				
	60.096	28.948	13.282	59.313	0.017782	14.220				
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP				
	73.849	5.7258	44.810	7.5814	6.2526	6.1476				
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT				
	67.062	-0.023801	0.92603	0.00000	2.6638	-13.350				
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP					
	2.6638	20.930	2.0986	0.048191	0.72504					
ENG. COND.	F/A DRY	F/A WET	FQU. RATIO	RPM-1	RPM-2	TORQUE	BHP			
	0.10542	0.10539	1.5734	607.92	606.96	6.2590	0.72448			
WET CORRECTION FACTOR = 0.89763			EXHAUST MOLE. WT. = 25.881		EXHAUST DENSITY = 0.067013		EXHAUST FLOW RATE = 978.67			
MEASURED CONC.		PART PER MILLION WET		PER CENT						
		HC PPM	NOX PPM	CO DRY	CO2 DRY	C2 DRY				
		37941.	5.2555	11.0960	5.6240	3.4865				
CORRECTED CONC. TO WET BASIS				9.9605	5.0483	3.1296				
EMISSION RATE		HC	NOX	CO						
		1.3330	0.00061206	7.0770						
EMISSION MASS/MODE		0.022217	1.0201E-05	0.11795						
EMISSION MASS/RATED HP		0.00013886	6.3757E-08	0.00073719						
MODE EMIS./STD. CYCLE %		7.3084	0.0042504	1.7552						
CAL. FUEL AIR RATIO = 0.10555		MEAS. FUEL AIR RATIO = 0.10542		DIFF MEAS. & CAL. F/A PERCENT = 0.13095						
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4						
	313.40	336.21	314.83	262.94						
FXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2				
	1310.6	879.98	841.09	1192.5	860.08	864.91				
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 12.295						
	164.48	301.53	45.040							
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.098							
	11.406	600.60								
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2						
	59.310	60.096	60.983	55.827						
ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW						
	85.410	0.067307	53.461	254.54						
GELL TEMP. =	77.511	HEATER TEMP = 84.342		COOLER TEMP = 57.313						

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NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDEIT REC 03/31/76 22:44:24.082 FAC SEX15 PGM C003 RDG 2710

LEANOUT 25 BTDC I.E.T 59 DEG. HUM=0% MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.950 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	60.899	28.955	20.657	92.223	0.023505	14.224

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	74.684	5.6883	44.788	10.565	9.1599	6.1296

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	65.763	-0.017712	0.97419	0.00000	2.2018	-15.846

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	2.2018	20.904	1.7841	0.040970	1.4161

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.099324	0.099298	1.4824	1200.7	1202.8	6.1839	1.4138

WET CORRECTION FACTOR = 0.86314 EXHAUST MOLE. WT. = 26.270 EXHAUST DENSITY = 0.068020 EXHAUST FLOW RATE = 1490.8

MEASURED CONC.	PART PER MILLION WFT	PER CENT		
	HC PPM	CO DRY		
	NOX PPM	CO2 DRY		
		C2 DRY		
	13294.	12.296	7.1603	0.42014
	12.660	10.613	6.1804	0.36264
CORRECTED CONC. TO WET BASIS				

EMISSION RATE	HC	NOX	CO
EMISSION MASS/MODE	0.71152	0.0022460	11.437
EMISSION MASS/RATED HP	0.035576	0.00011230	0.57436
MODE EMIS./STD. CYCLE %	0.00022235	7.0189E-07	0.0035897
	11.703	0.046793	8.5470

CAL. FUEL AIR RATIO = 0.10414 MEAS. FUEL AIR RATIO = 0.099324 DIFF MEAS. & CAL. F/A PERCENT = 4.8475

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	299.39	313.91	302.17	239.77

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	996.17	889.79	685.39	946.20	823.15	818.65

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 8.5325
	164.18	347.94	55.618	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 28.997
	9.0225	1196.6	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	60.249	60.899	86.808	56.164

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	86.015	1.0120	53.396	1414.6

CELL TEMP. = 77.971 HEATER TEMP = 84.162 COOLER TEMP = 52.708

NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDEII REC 03/31/76 22:46:35.558 FAC SEX15 PGM C003 RDG 2711

LEANOUT 25 BTDC I & T 59 DEG. HUM=0% MCDE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.960 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	61.286	28.964	12.882	57.510	0.014729	14.222

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	74.906	5.7276	44.782	3.9732	6.2256	6.1323

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	67.151	-0.037085	0.88396	0.00000	2.1820	-15.776

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	2.1820	2.4722	1.7928	0.041169	0.22153

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10825	0.10823	1.6157	595.50	594.18	1.9502	0.22112

WET CORRECTION FACTOR = 0.90546 EXHAUST MOLE. WT. = 25.710 EXHAUST DENSITY = 0.066568 EXHAUST FLOW RATE = 957.66

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM	CO DRY
	38889.	5.5790
	NOX PPM	C2 DRY
	5.0015	3.4619
CORRECTED CONC. TO WET BASIS		
		5.0516
		3.1347

	HC	NOX	CO
EMISSION RATE	1.3370	0.00056998	6.9338
EMISSION MASS/MODE	0.022284	9.4996E-06	0.11556
EMISSION MASS/RATED HP	0.00013927	5.9373E-08	0.00072227
MODE EMIS./STD. CYCLE %	7.3302	0.0039582	1.7197

CAL. FUEL AIR RATIO = 0.10607 MEAS. FUEL AIR RATIO = 0.10825 DIFF MEAS. & CAL. F/A PERCENT = -2.0203

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	302.92	318.96	305.45	243.07

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1009.7	335.80	629.80	941.13	843.26	843.30

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 12.615
	164.70	342.52	44.864	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 28.854
	11.716	590.64	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	60.483	61.286	71.586	56.117

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	86.313	2.0247	53.482	1979.7

CELL TEMP. = 78.651 HEATER TEMP = 84.113 COOLER TEMP = 59.378

NASA-LEWIS		PRELIMINARY DATA		04/01/76		CADDEII		REC 03/31/76 22:50:40.100		FAC SEX15		PGM C003		RDG 2712	
LEANOUT 25 BTDC I & T 59 DEG. HUM=0%								MODE = 1.0000		NO. SCANS = 5					
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 28.960				RATED HP.= 160.00		HC RATIO= 2.1250			
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		58.642		28.964		11.928		53.401		0.014216		14.225			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		72.747		5.7522		44.839		3.9748		5.0885		6.1440			
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		64.479		-0.035148		0.95146		0.00000		2.4925		-15.191			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		2.4925		22.286		1.8635		0.042792		0.80817					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.095288		0.095262		1.4222		602.46		601.74		7.0507		0.80879	
WET CORRECTION FACTOR = 0.88060				EXHAUST MOLE. WT. = 26.542				EXHAUST DENSITY = 0.068724				EXHAUST FLOW RATE = 851.28			
MEASURED CONC.		PART PER MILLION WET				PER CENT									
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		33077.		5.5996		9.61580		6.6095		3.2874					
CORRECTED CONC. TO WET BASIS						8.4677		5.8203		2.8949					
EMISSION RATE		HC		NOX		CO									
		1.0109		0.00056725		5.2333									
EMISSION MASS/MODE		0.016848		9.4542E-06		0.087221									
EMISSION MASS/RATED HP		0.00010530		5.9089E-08		0.00054513									
MODE EMIS./STD. CYCLE %		5.5421		0.0039392		1.2979									
CAL. FUEL AIR RATIO = 0.098486				MEAS. FUEL AIR RATIO = 0.095288				DIFF MEAS. & CAL. F/A PERCENT = 3.3564							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		259.53		278.46		259.88		216.46							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		797.86		152.53		466.98		894.91		756.89		749.01			
ENGINE OIL		FOILT		SOILT		OILP		MANIFOLD PRESSURE = 11.318							
		153.09		341.06		45.625									
DYNO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.076									
		0.093609		592.92											
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
		57.764		58.642		57.292		54.711							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		83.647		2.0071		53.413		1976.4							
CELL TEMP. = 75.899				HEATER TEMP = 83.982				COOLER TEMP = 51.131							

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NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDEII REC 03/31/76 22:55:16.417 FAC SEX15 PGM C003 RDG 2714

LEANOUT 25 BTDC I & T 59 DEG. HUM=0% MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.960 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.085	28.959	18.856	84.221	0.019937	14.224

CCMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	73.716	5.7138	44.813	9.3421	7.9478	6.1380

CCCLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	65.162	-0.023801	0.83470	0.00000	2.1814	-16.926

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	2.1814	8.8449	1.6570	0.038051	1.3066

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.094368	0.094346	1.4085	1200.5	1201.7	5.7172	1.3068

WET CORRECTION FACTOR = 0.86116 EXHAUST MOLE. WT. = 26.606 EXHAUST DENSITY = 0.068889 EXHAUST FLOW RATE = 1338.2

MEASURED CONC.	PART PER MILLION WET	PER CENT			
	HC PPM	CO DRY	CO2 DRY	O2 DRY	
	8288.8	23.858	11.2410	7.9031	0.24120
CORRECTED CONC. TO WET BASIS			9.6800	6.8058	0.20772

EMISSION RATE	HC	NOX	CO
	0.39821	0.0037994	9.4045
EMISSION MASS/MODE	0.019911	0.00018997	0.47023
EMISSION MASS/RATED HP	0.00012444	1.1873E-06	0.0029389
MODE EMIS./STD. CYCLE %	6.5495	0.079154	6.9974

CAL. FUEL AIR RATIO = 0.098137 MEAS. FUEL AIR RATIO = 0.094368 DIFF MEAS. & CAL. F/A PERCENT = 3.9940

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	296.74	311.27	300.33	229.31

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	761.81	38.048	399.86	885.29	725.10	716.51

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 8.1098
	162.66	292.55	53.009	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 28.938
	23.258	1194.1	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	58.470	59.085	78.020	55.930

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	84.200	2.0648	53.414	2002.0

CELL TEMP. = 76.609 HEATER TEMP = 83.843 COOLER TEMP = 58.813

NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDETT REC 03/31/76 23:04:09.306 FAC SEX15 PGM C003 RDG 2717

LEANOUT 25 BTDC 1.6 T 59 DEG. HUM=0% MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BARMETRIC PRESSURE = 28.950 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	60.601	28.950	16.796	75.013	0.016398	14.222

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	75.110	5.7522	44.776	7.7870	6.4866	6.1371

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	66.211	-0.041514	0.95122	0.00000	1.9083	-18.041

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	1.9083	6.0166	1.5302	0.035139	1.2676

ENG. COND.	F/A DRY	F/A WET	EQJ. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.086474	0.086455	1.2907	1201.6	1202.7	5.5339	1.2660

WET CORRECTION FACTOR = 0.86404 EXHAUST MOLE. WT. = 27.178 EXHAUST DENSITY = 0.070370 EXHAUST FLOW RATE = 1158.4

PART PER MILLION WET			PER CENT		
MEASURED CONC.	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	3998.4	47.357	8.30850	9.6496	0.14729
CORRECTED CONC. TO WET BASIS			7.1789	8.3377	0.12727

	HC	NOX	CO
EMISSION RATE	0.16628	0.0065280	6.0374
EMISSION MASS/MODE	0.030484	0.0011968	1.1069
EMISSION MASS/RATED HP	0.00019053	7.4800E-06	0.0069178
MODE EMIS./STD. CYCLE %	10.028	0.49867	16.471

CAL. FUEL AIR RATIO = 0.087364 MEAS. FUEL AIR RATIO = 0.086474 DIFF MEAS. & CAL. F/A PERCENT = 1.0290

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	289.58	304.82	293.10	220.02

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1574.5	-197.35	363.58	935.13	714.37	706.88

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 7.6146
	161.16	214.23	53.049	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 28.972
	13.048	1197.4	

INDUCTION AIR	IAIPT1	IAIPT2	TAIRT1	TAIRT2
	59.915	60.601	70.434	55.910

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	85.332	0.10331	53.383	357.74

CELL TEMP. = 77.944 HEATER TEMP = 83.614 COOLER TEMP = 59.961

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NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDE11 REC 03/31/76 23:06:41.503 FAC SEX15 PGM C003 RDG 2718  
 LEANOUT 25 BTDC I' & T 59 DEG. HUM=0% MODE = 6.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.960 RATED HP. = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	60.465	28.965	17.086	76.726	0.016895	14.228	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	75.739	5.7456	44.760	8.0708	6.6727	6.1329	
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	66.462	-0.021864	0.98581	0.00000	1.9323	-17.936	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	1.9323	0.26403	1.5414	0.035395	1.8919		
ENG. CO'D.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.086968	0.086949	1.2980	1205.3	1206.0	8.2341	1.8897
WET CORRECTION FACTOR = 0.86722				EXHAUST MOLE WT. = 27.141		EXHAUST DENSITY = 0.070274	
				EXHAUST FLOW RATE = 1187.0			
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	3908.0	49.043	8.21710	9.6712	0.16336		
CORRECTED CONC. TO WET BASIS			7.1261	8.3871	0.14167		
EMISSION RATE	HC	NOX	CO				
	0.16653	0.0069274	6.1410				
EMISSION MASS/MODE	0.0083266	0.00034637	0.30705				
EMISSION MASS/RATED HP	5.2041E-05	2.1648E-06	0.0019191				
MODE EMIS./STD. CYCLE %	2.7390	0.14432	4.5692				
CAL. FUEL AIR RATIO = 0.087047				MEAS. FUEL AIR RATIO = 0.086968		DIFF MEAS. & CAL. F/A PERCENT = 0.091496	
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	296.03	311.83	300.36	233.69			
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	FXT-4	SEXT-1	SEXT-2	
	1499.3	-290.33	278.01	811.27	694.25	686.02	
ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 7.6585			
	161.48	271.63	53.117				
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.018				
	6.3798	1198.9					
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2			
	59.798	60.465	86.383	53.342			
GRIFICE AIR	TEMP	DELTAP	ORFP	FLOW			
	85.726	2.0384	53.501	1987.1			
CELL TEMP. = 78.245	HEATER TEMP = 83.580		COOLER TEMP = 46.926				

NASA-LEWIS PRELIMINARY DATA 04/01/76 CANDEII REC 03/31/76 23:15:04.557 FAC SEX15 PGM C003 RDG 2721

LEANOUT 25 BTDC I & T 59 DEG. HUM=0% MCDE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.950 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.292	28.949	16.765	74.683	0.015141	14.222

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	73.387	5.7657	44.822	7.0179	5.7816	6.1416

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	64.973	-0.022971	1.0484	0.00000	1.8543	-19.041

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	1.8543	42.094	1.4192	0.032590	1.5506

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.077415	0.077399	1.1554	1200.5	1200.5	6.7840	1.5507

WET CORRECTION FACTOR = 0.87157 EXHAUST MOLE. WT. = 27.890 EXHAUST DENSITY = 0.072213 EXHAUST FLOW RATE = 1114.5

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	2000.8	67.789	4.12590	11.738	0.12103
CORRECTED CONC. TO WET BASIS			3.5960	10.231	0.10549

	HC	NOX	CO
EMISSION RATE	0.080051	0.0089903	2.9096
EMISSION MASS/MODE	0.014676	0.0016482	0.53342
EMISSION MASS/RATED HP	9.1725E-05	1.0301E-05	0.0033339
MODE FMIS./STD. CYCLE %	4.8277	0.68676	7.9378

CAL. FUEL AIR RATIO = 0.076422 MEAS. FUEL AIR RATIO = 0.077415 DIFF MEAS. & CAL. F/A PERCENT = -1.2825

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	314.97	333.92	325.18	247.07

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1304.4	-349.10	366.96	715.35	726.64	722.15

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE
	162.18	338.65	52.817	7.7449

DYNO COND.	TORQUE	RPM	CYL BACK PRESSURE
	7.8128	1198.8	28.997

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	58.596	59.292	102.60	57.225

ORIFICE AIR	TFMP	DELTA P	ORFP	FLOW
	83.532	2.0006	53.402	1973.5

CELL TEMP. = 76.174 HEATER TEMP = 103.04 COOLER TEMP = 65.210



CELL TEMP. = 76.652      HEATER TEMP = 95.651      COOLER TEMP = 48.262

NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDEII REC 04/01/76 15:15:25.702 FAC SEX15 PGM C083 RDG 2724

LEANOUT TO CL APP-59 DEG. HUM=0% MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.850 RATED HP = 160.00 HC RATIO = 2.1250

CCMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.518	28.834	209.06	963.58	0.15386	14.655

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	66.193	5.3342	45.313	80.412	78.494	6.0192

COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	62.727	2.9679	3.5810	9898.5	1.4929	-21.516

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	1.4929	17.408	1.1177	0.025666	157.41

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.081460	0.081447	1.2158	2702.6	2704.5	292.91	150.73

WET CORRECTION FACTOR = 0.85360 EXHAUST MOLE. WT. = 27.564 EXHAUST DENSITY = 0.071371 EXHAUST FLOW RATE = 14603

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM NOX PPM CO DRY CO2 DRY O2 DRY	
	1371.8 219.04 7.5985 10.343 0.028543	
CORRECTED CONC. TO WET BASIS		6.4861 8.8290 0.024364

EMISSION RATE	HC	NOX	CO
	0.71918	0.38064	68.764
EMISSION MASS/MODE	0.0035959	0.0019032	0.34382
EMISSION MASS/RATED HP	2.2474E-05	1.1895E-05	0.0021489
MODE EMIS./STO. CYCLE %	1.1829	0.79300	5.1164

CAL. FUEL AIR RATIO = 0.084135 MEAS. FUEL AIR RATIO = 0.081460 DIFF MEAS. & CAL. F/A PERCENT = 3.2840

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	419.29	437.82	419.36	330.25

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	375.24	-204.89	661.55	1306.1	1370.2	1371.5

ENGINE OIL	TEMP	SOILT	OILP	MANIFOLD PRESSURE
	179.64	204.38	68.859	27.948

DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	295.52	2645.7	28.998

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	59.229	59.518	-33.883	55.169

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	86.050	1.0463	54.206	1438.0

CELL TEMP. = 78.748 HEATER TEMP = 84.169 COOLER TEMP = 56.316

NASA-LEWIS PRELIMINARY DATA

04/01/76

CADDEN

REC 04/01/76 15:26:40.537

FAC SEX15

PGH C003

RDG 2725

LEANDUT TO CL APP 59 DEG. HUM=0%

MODE = 4.0000

NO. SCANS = 5

ENGINE TIMING = 25.000

DEG.

BAROMETRIC PRESSURE = 28.860

RATED HP. = 160.00

HC RATIO = 2.1250

CCMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.021	28.879	168.44	765.89	0.11393	14.477

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	65.960	5.3825	45.019	61.764	61.548	6.0636

CCCLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	60.854	2.9632	3.5716	9889.7	1.3985	-22.376

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	1.3985	0.61206	1.0413	0.023912	119.64

ENG. COND.	F/A DRY	F/A WET	FOU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.080362	0.080350	1.1994	2432.9	2434.7	258.27	119.64

WET CORRECTION F. FOR = 0.85330 EXHAUST MOLE. WT. = 27.652 EXHAUST DENSITY = 0.071596 EXHAUST FLOW RATE = 11558.

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	C2 DRY
	1564.2	572.36	7.1486	10.617	0.053005
CORRECTED CONC. TO WET BASIS			6.0999	9.0598	0.045229

EMISSION RATE	HC	NOX	CO
	0.64905	0.78725	51.187
EMISSION MASS/MODE	0.054087	0.065604	4.2656
EMISSION MASS/RATED HP	0.00033804	0.00041003	0.026660
MODE EMIS./STD. CYCLE %	17.792	27.335	63.476

CAL. FUEL AIR RATIO = 0.083005 MEAS. FUEL AIR RATIO = 0.080362 DIFF MEAS. &amp; CAL. F/A PERCENT = 3.2892

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	369.67	385.23	411.30	326.43

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1496.8	-454.00	473.78	1010.6	1293.0	1294.2

ENGINE OIL	EQILT	SOILT	OILP	MANIFOLD PRESSURE = 26.019
	187.12	215.18	70.339	

DYNO COMD.	TORQUE	RPM	CYL. BACK PRESSURE = 28.944
	268.15	2379.4	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	58.723	59.021	70.311	55.863

ORIFICE AIR	TEMP	DELTAP	ORIF	FLOW
	86.471	2.0317	53.271	1982.6

CELL TEMP = 78.757 HEATER TEMP = 85.403 COOLER TEMP = 54.581

NASA-LEWIS PRELIMINARY DATA 06/01/76 CADD611 REC 06/01/78 15:33:35.146 FAC SEX15 PGM C003 R06 2726

LEANOUT TO CL APP 59 DEG. HUM=0% MODE = 5.0000 NO. SCANS = 4

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.860 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	60.540	28.867	105.08	471.70	0.069619	14.293

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	69.603	5.4722	44.922	45.215	42.379	6.0884

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	61.948	2.9208	3.6058	9810.1	1.2978	-22.579

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	1.2978	0.32753	1.0331	0.023724	65.215

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.089844	0.089830	1.3410	2351.8	2353.2	145.38	65.099

WET CORRECTION FAC. R = 0.87235 EXHAUST MOLE. WT. = 26.928 EXHAUST DENSITY = 0.069724 EXHAUST FLOW RATE = 7374.1

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	2043.7	180.72	9.1579	9.4906	0.13289
CORRECTED CONC. TO WET BASIS			7.9976	8.2791	0.11592

	HC	NOX	CO
EMISSION RATE	0.54103	0.15858	42.816
EMISSION MASS/MODE	0.054103	0.015858	4.2816
EMISSION MASS/RATED HP	0.00033814	9.9114E-05	0.026760
MODE EMIS./STD. CYCLE %	17.797	6.6076	63.714

CAL. FUEL AIR RATIO = 0.088102 MEAS. FUEL AIR RATIO = 0.089844 DIFF MEAS. & CAL. F/A PERCENT = -1.9384

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	317.06	332.25	328.07	246.84

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1060.9	-454.00	161.64	842.20	1106.8	1105.7

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE =
	185.54	184.01	70.647	18.133

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE =
	142.03	2304.2	28.923

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	60.202	60.540	127.06	55.894

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	88.436	2.4954	53.326	2180.0

CELL TEMP. = 80.009 HEATER TEMP = 85.201 COOLER TEMP = 55.570

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NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDEII REC 04/01/76 17:14:49.506 FAC SEX15 PGM C003 RDG 2728

LEANOUT TO CL APP-59 DEG. HUM=0% MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.880 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.319	28.876	209.54	967.26	0.14338	14.666

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	66.507	5.3306	45.005	81.315	79.049	5.9241

COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	61.313	3.0446	3.7221	10040.	1.3969	-22.281

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	1.3969	35.280	1.0377	0.023828	158.68

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.081724	0.081712	1.2198	2698.9	2700.7	296.28	152.25

WET CORRECTION FACTOR = 0.85504 EXHAUST MOL. WT. = 27.544 EXHAUST DENSITY = 0.071317 EXHAUST FLOW RATE = 14673.

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	1397.5	261.24	7.4776	10.665	0.043964
CORRECTED CONC. TO WET BASIS			6.3936	9.1192	0.037591

	HC	NOX	CO
EMISSION RATE	0.73618	0.45615	68.110
EMISSION MASS/MODE	0.0036809	0.0022807	0.34055
EMISSION MASS/RATED HP	2.3006E-05	1.4255E-05	0.0021284
MODE EMIS./STD. CYCLE %	1.2108	0.95031	5.0677

CAL. FUEL AIR RATIO = 0.083459 MEAS. FUEL AIR RATIO = 0.081724 DIFF MEAS. & CAL. F/A PERCENT = 2.1233

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	403.13	430.81	410.77	123.96

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1129.6	-181.88	840.43	1330.8	1359.1	1360.8

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	165.08	190.61	70.979	28.007

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	294.52	2602.8	28.989

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	59.039	59.319	23.049	54.791

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	91.552	2.9888	53.321	2367.9

CELL TEMP. = 80.734 HEATER TEMP = 89.362 COOLER TEMP = 53.051

NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDEII REC 04/01/76 17:17:30.108 FAC SEX15 PGM C003 RDG 2729  
 LEANOUT TO CL APP 99 DEG. HUM=0% MODE = 4.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.880 RATED HP. = 160.00 HC RATIO = 2.1250  
 COMB. AIR TEMP 56.823 PRESS 28.883 CFM 168.49 DRY FLOW 768.25 VAPOR FLOW 0.10892 PRESS TOTAL 14.478  
 COMB. FUEL TEMP 64.695 PRESS 5.3831 DENSITY 45.053 TURBO FLOW 64.753 FLOW TRON 63.405 FPIP 6.0294  
 COOLING AIR TEMP 59.220 UDEL-HOOD 2.9787 DEL-HOOD 3.6828 FLOW 9918.7 REL-HUM 1.4426 DEW-POINT -22.841  
 REL-HUM 1 2 HUMIDITY % H2O VAPOR CORRECTED HP  
 1.4426 27.381 0.99243 0.022790 119.48  
 ENG. COND. F/A DRY 0.082532 F/A WET 0.082520 EQU. RATIO 1.2318 RPM-1 2435.2 RPM-2 2436.8 TORQUE 258.34 BHP 119.79  
 WET CORRECTION FACTOR = 0.86328 EXHAUST MOLE. WT. = 27.480 EXHAUST DENSITY = 0.071153 EXHAUST FLOW RATE = 11689.  
 MEASURED CONC. PART PER MILLION WET PER CENT  
 HC PPM 1526.7 NOX PPM 539.51 CO DRY 6.9845 CO2 DRY 10.880 O2 DRY 0.064386  
 CORRECTED CONC. TO WET BASIS 6.0297 9.3922 0.055584  
 EMISSION RATE HC 0.64068 NOX 0.75051 CO 51.172  
 EMISSION MASS/MODE 0.053390 0.062543 4.2644  
 EMISSION MASS/RATED HP 0.00033369 0.00039089 0.026652  
 MODE EMIS./STD. CYCLE % 17.563 26.059 63.458  
 CAL. FUEL AIR RATIO = 0.082331 MEAS. FUEL AIR RATIO = 0.082532 DIFF MEAS. & CAL. F/A PERCENT = -0.24252  
 CYL TEMP DEG.F CYL-1 378.44 CYL-2 391.81 CYL-3 408.48 CYL-4 118.61  
 EXT GAS TEMP DEG.F EXT-1 1592.4 EXT-2 -454.00 EXT-3 885.81 EXT-4 1307.1 SEXT-1 1301.7 SEXT-2 1303.2  
 ENGINE OIL EOILT 172.54 SOILT 161.30 OILP 67.411 MANIFOLD PRESSURE = 26.080  
 DYNO COND. TORQUE 261.27 RPM 2356.3 CYL. BACK PRESSURE = 29.012  
 INDUCTION AIR IAIRT1 56.506 IAIRT2 56.823 TAIRT1 136.95 TAIRT2 54.493  
 ORIFICE AIR TEMP 89.024 DELTAP 2.0017 ORFP 53.150 FLOW 1964.2  
 CELL TEMP. = 78.704 HEATER TEMP = 89.237 COOLER TEMP = 54.904

NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDEII REC 04/01/76 17:21:05.019 FAC SEX15 PGM C003 RDG 2730

LEANOUT TO CL APP 25 BTDC 59 DEG. 0% HUM MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.880 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	57.565	28.897	104.57	470.45	0.060002	14.300

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	66.793	5.4650	44.997	45.500	41.497	6.0576

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	59.509	2.8954	3.7321	9762.1	1.2481	-23.891

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	1.2481	29.429	0.89279	0.020501	65.328

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.088207	0.088196	1.3165	2350.2	2352.1	146.27	65.455

WET CORRECTION FACTOR = 0.86556 EXHAUST MOLE. WT. = 27.048 EXHAUST DENSITY = 0.070035 EXHAUST FLOW RATE = 7310.7

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	NOX PPM	CO DRY
1950.0	154.06	9.1655
CORRECTED CONC. TO WET BASIS		CO2 DRY
		0.10107
		8.3749
		0.087482

EMISSION RATE	HC	NOX	CO
EMISSION MASS/MODE	0.51179	0.13402	42.107
EMISSION MASS/RATED HP	0.051179	0.013402	4.2107
MODE EMIS./STD. CYCLE %	0.00031987	8.3765E-05	0.026317
	16.835	5.5843	62.659

CAL. FUEL AIR RATIO = 0.087868 MEAS. FUEL AIR RATIO = 0.088207 DIFF MEAS. & CAL. F/A PERCENT = -0.38510

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	323.18	332.84	333.82	110.68

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1813.8	-454.00	674.52	1116.8	1138.3	1136.8

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.179
	177.84	209.59	68.979	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 28.961
	141.25	2299.7	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	57.212	57.565	136.27	55.078

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	88.980	1.0716	53.259	1451.1

CELL TEMP. = 78.165 HEATER TEMP = 89.057 COOLER TEMP = 55.489



NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDEII REC 04/01/76 17:26:31.071 FAC SEX15 PGM C003 RDG 2731

LEANOUT TO CL APP 25 BTDC 59 DEG. 0% HUM MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.890 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	58.135	28.890	209.59	967.46	0.11289	14.672

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	F/FID
	65.565	5.3417	45.030	81.274	76.577	6.0687

COOLING AIR	TEMP	INDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	61.205	3.0452	3.6513	10041.	1.1477	-24.401

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	1.1477	43.620	0.81679	0.018756	157.11

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.079152	0.079143	1.1814	2699.6	2702.0	293.85	151.04

WET CORRECTION FACTOR = 0.85383 EXHAUST MOLE. WT. = 27.749 EXHAUST DENSITY = 0.071848 EXHAUST FLOW RATE = 14532.

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1243.5	384.90	6.5277	11.102	0.047985
CORRECTED CONC. TO WET BASIS			5.5735	9.4790	0.040971

	HC	NOX	CO
EMISSION RATE	0.64878	0.66565	58.806
EMISSION MASS/MODE	0.0032439	0.0033282	0.29403
EMISSION MASS/RATED HP	2.0274E-05	2.0801E-05	0.0018377
MODE EMIS./STD. CYCLE %	1.0671	1.3868	4.3754

CAL. FUEL AIR RATIO = 0.081203 MEAS. FUEL AIR RATIO = 0.079152 DIFF MEAS. & CAL. F/A PERCENT = 2.5915

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	411.77	431.76	416.61	124.31

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1470.5	-84.498	877.01	1288.3	1362.0	1363.5

ENGINE OIL	EQILY	SOILT	OILP	MANIFOLD PRESSURE
	181.30	208.51	70.991	27.937

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	292.38	2628.9	29.020

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	57.764	58.135	83.863	55.040

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	89.547	2.9920	53.292	2373.4

CELL TEMP. = 79.781 HEATER TEMP = 88.781 COOLER TEMP = 54.626

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NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDEII REC 04/01/76 17:29:26.234 FAC SEX15 PGM C003 RDG 2732

LEANOUT TO CL APP 25 BTDC 59 DEG. 0% HUM MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.890 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	58.497	28.832	166.54	759.29	0.085422	14.482

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	66.650	5.3873	45.001	60.065	59.886	6.0558

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	61.529	3.0056	3.7775	9968.7	1.0782	-24.777

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	1.0782	0.21602	0.78752	0.018084	119.49

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.078871	0.078862	1.1772	2430.0	2431.1	258.43	119.57

WET CORRECTION FACTOR = 0.85732 EXHAUST MOLE. WT. = 27.771 EXHAUST DENSITY = 0.071906 EXHAUST FLOW RATE = 11393.

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	O2 DRY
	1378.7	730.19	6.0833	0.090449
CORRECTED CONC. TO WET BASIS			5.2153	0.077543

	HC	NOX	CO
EMISSION RATE	0.56393	0.99000	43.139
EMISSION MASS/MODE	0.046995	0.082500	3.5949
EMISSION MASS/RATED HP	0.00029372	0.00051563	0.022468
MODE FMS./STO. CYCLE %	15.459	34.375	53.496

CAL. FUEL AIR RATIO = 0.080072 MEAS. FUEL AIR RATIO = 0.078871 DIFF MEAS. & CAL. F/A PERCENT = 1.5222

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	387.64	402.32	414.10	122.10

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1550.4	-400.41	1027.2	1324.2	1309.0	1310.5

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 26.023
	188.41	113.88	69.739	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.020
	244.39	2344.2	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	58.226	58.497	76.893	54.717

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	89.862	1.0779	53.267	1454.2

CELL TEMP. = 80.734 HEATER TEMP = 88.642 COOLER TEMP = 55.300

NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDE11 REC 04/01/76 17:32:36.711 FAC SEX15 PGM C003 RDG 2733

LEANOUT TO CL APP 25 BTDC 59 DEG. 0% HUM MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.890 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.608	28.885	103.92	467.49	0.049179	14.304

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	69.253	5.4806	44.931	43.683	40.246	6.1041

COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	61.989	3.0175	3.5879	9990.7	0.95705	-25.337

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	0.95705	0.31603	0.73639	0.016910	66.396

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.086090	0.086081	1.2849	2350.6	2351.9	148.26	66.358

WET CORRECTION FACTOR = 0.86710 EXHAUST MOLE. WT. = 27.207 EXHAUST DENSITY = 0.070445 EXHAUST FLOW RATE = 7208.2

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM NOX PPM CO DRY CO2 DRY O2 DRY	
	1843.4 225.24 8.1009 10.245 0.10105	
CORRECTED CONC. TO WET BASIS		7.0243 8.8831 0.087620

	HC	NOX	CO
EMISSION RATE	0.47702	0.19321	36.759
EMISSION MASS/MODE	0.047702	0.019321	3.6759
EMISSION MASS/RATED HP	0.00029814	0.00012075	0.022975
MODE EMIS./STD. CYCLE %	15.691	8.0503	54.702

CAL. FUEL AIR RATIO = 0.085107 MEAS. FUEL AIR RATIO = 0.086090 DIFF MEAS. & CAL. F/A PERCENT = -1.1415

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	335.33	345.98	344.82	114.08

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1729.9	-323.56	827.10	1090.3	1156.5	1155.1

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	187.23	123.12	69.899	18.147

DYNO COND.	TORQUE	RPM	CYL. RACK PRESSURE
	150.37	2326.9	28.957

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	59.283	59.608	102.26	55.228

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	90.254	2.0168	53.285	1969.0

CELL TEMP. = 80.699 HEATER TEMP = 88.525 COOLER TEMP = 55.615

NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDEII REC 04/01/76 17:44:53.055 FAC SEX15 PGM C003 RDG 2735

LEANOUT TO CL APP 25 BTDC 59 DEG. 0% HUM MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.890 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	57.882	28.840	208.38	961.77	0.11034	14.673

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	64.497	5.3432	45.058	77.798	76.334	5.9601

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	61.223	2.9594	3.6919	9882.5	1.1389	-24.532

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	1.1389	41.136	0.80307	0.018441	157.32

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.079368	0.079359	1.1846	2702.2	2704.2	293.43	150.97

WET CORRECTION FACTOR = 0.85429 EXHAUST MOLE. WT. = 27.731 EXHAUST DENSITY = 0.071803 EXHAUST FLOW RATE = 14459.

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM NOX PPM CO DRY CO2 DRY O2 DRY	
	1283.3 254.11 6.47020 11.227 0.021242	
CORRECTED CONC. TO WET BASIS		5.5275 9.5910 0.018147

EMISSION RATE	HC	NOX	CO
	0.66616 0.43723 58.024		
EMISSION MASS/MODE	0.0033308 0.0021861 0.29012		
EMISSION MASS/RATED HP	2.0817E-05 1.3663E-05 0.0018132		
MODE EMIS./STD. CYCLE %	1.0957 0.91089 4.3173		

CAL. FUEL AIR RATIO = 0.081087 MEAS. FUEL AIR RATIO = 0.079368 DIFF MEAS. & CAL. F/A PERCENT = 2.1654

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	426.07	444.48	438.33	126.53

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	887.35	50.702	941.31	1216.5	1408.4	1409.2

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 27.989
	187.88	239.11	70.995	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.055
	296.89	2674.8	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	57.565	57.882	61.411	55.141

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	88.587	0.082708	53.231	299.99

CELL TEMP. = 79.093 HEATER TEMP = 89.110

COOLER TEMP = 55.103

NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDEII REC 04/01/76 17:50:21.041 FAC SEX15 PGM C003 RDG 2736  
 LEANOUT TO CL APP 25 BTDC 59 DEG. 0% HUM MODE = 4.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.890 RATED HP. = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	58.840	28.832	156.68	759.87	0.094842	14.490	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	67.142	5.3936	44.988	62.076	58.959	6.0612	
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	61.872	3.0457	3.5970	10042.	1.1822	-23.961	
REL-HUM	1	2	HUMIDITY	H2O VAPOR	CORRECTED HP		
	1.1822	13.895	0.87370	0.020063	119.37		
ENG. COND.	F/A DRY	F/A WET	FOU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.077591	0.077581	1.1581	2429.9	2431.6	258.08	119.41
WET CORRECTION FACTOR = 0.85243		EXHAUST MOLE WT. = 27.875		EXHAUST DENSITY = 0.072176		EXHAUST FLOW RATE = 11346.	
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	1396.4	708.89	5.97950	11.423	0.073007		
CORRECTED CONC. TO WET BASIS			5.0970	9.7373	0.062233		
EMISSION RATE	HC	NOX	CO				
	0.56881	0.95714	41.986				
EMISSION MASS/MODE	0.047401	0.079762	3.4988				
EMISSION MASS/RATED HP	0.00029625	0.00049851	0.021868				
MODE EMIS./STD. CYCLE %	15.592	33.234	52.066				
CAL. FUEL AIR RATIO = 0.079908		MEAS. FUEL AIR RATIO = 0.077591		DIFF MEAS. & CAL. F/A PERCENT = 2.9858			
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	374.99	383.50	402.33	121.60			
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	1326.7	-325.30	1042.5	1301.5	1312.3	1313.4	
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 26.006			
	187.47	146.55	69.987				
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 28.967				
	245.33	2376.3					
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2			
	58.533	58.840	183.43	55.020			
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW			
	89.390	2.0405	53.220	1981.4			
CELL TEMP. = 80.161	HEATER TEMP = 87.985		COOLER TEMP = 56.154				

NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDEII REC 04/01/76 17:53:14.566 FAC SEX15 PGM C003 RDG 2737

LEANOUT TO CL APP 25 BTDC 59 DEG. 0% HUM MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.890 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.852	28.898	104.12	468.11	0.063157	14.303

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	69.431	5.4818	44.927	41.938	39.913	6.0834

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	62.250	2.9151	3.6792	9799.2	1.2166	-23.406

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	1.2166	0.31403	0.94445	0.021688	64.952

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.085265	0.085253	1.2726	2352.7	2354.5	144.86	64.894

WET CORRECTION FACTOR = 0.86371 EXHAUST MOLE. WT. = 27.269 EXHAUST DENSITY = 0.070607 EXHAUST FLOW RATE = 7195.9

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1921.0	225.02	8.0896	10.294	0.090689
CORRECTED CONC. TO WET BASIS			6.9871	8.8911	0.078329

	HC	NOX	CO
EMISSION RATE	0.47042	0.19269	36.502
EMISSION MASS/MODE	0.047042	0.019269	3.6502
EMISSION MASS/RATED HP	0.00029401	0.00012043	0.022814
MODE EMIS./STD. CYCLE %	15.474	8.8287	54.318

CAL. FUEL AIR RATIO = 0.085049 MEAS. FUEL AIR RATIO = 0.085265 DIFF MEAS. & CAL. F/A PERCENT = -0.25334

CYL TEMP DEG. F.	CYL-1	CYL-2	CYL-3	CYL-4
	336.77	345.45	348.63	114.10

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1188.5	-229.09	895.29	1070.7	1168.6	1167.0

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.188
	187.16	149.02	69.651	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 28.954
	143.56	2312.6	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	59.500	59.852	114.14	55.473

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	89.748	3.9794	53.217	2729.9

CELL TEMP. = 81.157 HEATER TEMP = 87.978 COOLER TEMP = 56.379

NASA-LEWIS		PRELIMINARY DATA		04/01/76		CADDELL		REC 04/01/76 17:57:13.252		FAC SEX15		PGM C003		RDG 2738		
LEANOUT 25 BTDC TO CL APP 59 DEG. 0% HUM								MCDE = 3.0000		NO. SCANS = 5						
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 28.890				RATED HP. = 160.00		HC RATIO = 2.1250				
COMB. AIR		TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL									
		59.644	28.893	208.82	963.34	0.13324	14.667									
COMB. FUEL		TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP									
		67.062	5.3594	44.990	75.799	73.240	6.0234									
COOLING AIR		TEMP	UDEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT									
		63.284	2.9834	3.6908	9927.5	1.2885	-22.951									
REL-HUM		1	2	HUMIDITY	% H2O VAPOR		CORRECTED HP									
		1.2885	4.6185	0.96819	0.022233		157.17									
ENG. COND.		F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP								
		0.076027	0.076017	1.1347	2704.0	2706.1	292.99	150.84								
WET CORRECTION FACTOR = 0.85202				EXHAUST MOLE. WT. = 28.004		EXHAUST DENSITY = 0.072509				EXHAUST FLOW RATE = 14297.						
MEASURED CONC.		PART PER MILLION WET		PER CENT												
		HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY										
		1120.1	486.27	5.2871	11.841	0.050805										
CORRECTED CONC. TO WET BASIS				4.5047	10.088	0.043287										
EMISSION RATE		HC	NOX	CO												
		0.57494	0.82735	46.759												
EMISSION MASS/MODE		0.0028747	0.0041368	0.23380												
EMISSION MASS/RATED HP		1.7967E-05	2.5855E-05	0.0014612												
MODE EMISS./STD. CYCLE %		0.94563	1.7237	3.4791												
CAL. FUEL AIR RATIO = 0.078245				MEAS. FUEL AIR RATIO = 0.076027				DIFF MEAS. & CAL. F/A PERCENT = 2.9169								
CYL TEMP DEG. F		CYL-1	CYL-2	CYL-3	CYL-4											
		431.09	442.50	437.68	128.54											
EXT GAS TEMP DEG. F		EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2									
		1591.8	114.69	1030.1	1273.2	1411.5	1412.3									
ENGINE OIL		EOILT	SOILT	OILP	MANIFOLD PRESSURE = 27.980											
		187.72	173.97	71.087												
DYNO COND.		TORQUE	RPM	CYL. BACK PRESSURE = 29.063												
		292.89	2607.9													
INDUCTION AIR		IAIRT1	IAIRT2	TAIRT1	TAIRT2											
		59.328	59.644	78.099	55.153											
ORIFICE AIR		TEMP	DELTAP	ORFP	FLOW											
		90.106	2.0238	53.192	1972.5											
CELL TEMP. = 81.914				HEATER TEMP = 87.902				COOLER TEMP = 55.165								

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NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDELL REC 04/01/76 18:00:07.992 FAC SEX15 PGM C003 RDG 2739

LEANOUT 25 BTDC TO CL APP 59 DEG. 0% HUM MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.890 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	56.904	28.912	167.53	763.78	0.10913	14.487

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLY TRON	FPIP
	65.449	5.4044	45.033	59.040	57.354	6.0597

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT
	60.330	3.0103	3.6535	9977.4	1.4505	-22.761

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	1.4505	5.1205	1.0002	0.022967	118.99

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.075092	0.075081	1.1208	2433.2	2435.3	257.46	119.28

WET CORRECTION FACTOR = 0.85409 EXHAUST MOLE. WT. = 28.082 EXHAUST DENSITY = 0.072710 EXHAUST FLOW RATE = 11294.

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	O2 DRY
	1231.1	1025.0	4.80320	12.045
CORRECTED CONC. TO WET BASIS			4.1023	10.287
				0.10682

	HC	NOX	CO
EMISSION RATE	0.49920	1.3777	33.639
EMISSION MASS/MODE	0.041600	0.11481	2.8032
EMISSION MASS/RATED HP	0.00026000	0.00071754	0.017520
MODE EMIS./STD. CYCLE %	13.684	47.836	41.715

CAL. FUEL AIR RATIO = 0.077028 MEAS. FUEL AIR RATIO = 0.075092 DIFF MEAS. & CAL. F/A PERCENT = 2.5779

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	396.12	406.57	418.28	122.36

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1103.0	-290.75	1093.3	1371.3	1344.9	1346.0

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 26.216
	187.52	251.54	69.839	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 28.999
	253.00	2393.3	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	56.615	56.904	90.416	54.878

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	87.512	2.9752	53.301	2371.4

CELL TEMP. = 79.825 HEATER TEMP = 87.888 COOLER TEMP = 55.813



NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDET REC 04/01/76 18:03:05.218 FAC SEX15 PGM C003 RDG 2740  
 LEANOUT 25 BTDC TO CL APP 59 DEG. 0% HUM MODE = 5.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.890 RATED HP. = 160.00 HC RATIO = 2.1250  
 COMB. AIR TEMP 58.063 PRESS 28.892 CFM 103.11 DRY FLOW 463.34 VAPOR FLOW 0.068848 PRESS TOTAL 14.296  
 COMB. FUEL TEMP 68.118 PRESS 5.4917 DENSITY 44.962 TURBO FLOW 41.947 FLOW TRON 37.882 FPIP 6.1065  
 COOLING AIR TEMP 60.556 UDEL-HOOD 2.9857 DEL-HOOD 3.5652 FLOW 9931.6 REL-HUM 1.4277 DEW-POINT -22.511  
 REL-HUM 1 1.4277 2 0.33203 HUMIDITY 1.0401 % H2O VAPOR CORRECTED HP 0.023885 66.120  
 ENG. COND. F/A DRY 0.081758 F/A WET 0.081746 EQU. RATIO 1.2203 RPM-1 2354.0 RPM-2 2354.9 TORQUE 147.71 BHP 66.206  
 WET CORRECTION FACTOR = 0.86198 EXHAUST MOLE. WT. = 27.541 EXHAUST DENSITY = 0.071310 EXHAUST FLOW RATE = 7029.7  
 MEASURED CONC. PART PER MILLION WET PER CENT  
 HC PPM NOX PPM CO DRY CO2 DRY O2 DRY  
 1654.3 352.82 6.7865 10.984 0.096230  
 CORRECTED CONC. TO WET BASIS 5.8498 9.4683 0.082948  
 EMISSION RATE HC 0.41748 NOX 0.29515 CO 29.855  
 EMISSION MASS/MODE 0.041748 0.029515 2.9855  
 EMISSION MASS/RATED HP 0.00026093 0.00018447 0.018659  
 MODE EMISSION/STD. CYCLE % 13.733 12.298 44.427  
 CAL. FUEL AIR RATIO = 0.081820 MEAS. FUEL AIR RATIO = 0.081758 DIFF MEAS. & CAL. F/A PERCENT = 0.075747  
 CYL TEMP DEG.F CYL-1 342.38 CYL-2 349.50 CYL-3 349.75 CYL-4 113.73  
 EXT GAS TEMP DEG.F EXT-1 909.44 EXT-2 -99.012 EXT-3 1000.6 EXT-4 1127.8 SEXT-1 1185.6 SEXT-2 1184.0  
 ENGINE OIL FOILT 187.39 SOILT 114.75 OILP 69.967 MANIFOLD PRESSURE = 18.117  
 DYNO COND. TORQUE 140.66 RPM 2327.3 CYL. BACK PRESSURE = 28.934  
 INDUCTION AIR TAIRT1 57.692 TAIRT2 58.063 TAIRT1 107.54 TAIRT2 55.472  
 ORIFICE AIR TEMP 87.958 DELTAP 1.0488 ORFP 53.258 FLOW 1437.2  
 CELL TEMP. = 80.663 HEATER TEMP = 87.867 COOLER TEMP = 56.352



NASA-LEWIS PRELIMINARY DATA 04/01/76 CAODE11 REC 04/01/76 18:05:46.063 FAC SEX15 PGM C003 RDG 2741

LEANOUT 25 BTDC TO CL APP 59 DEG. OR HUM MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.890 RATED HP = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	58.714	28.870	209.24	963.52	0.14794	14.668

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	65.987	5.3621	45.018	77.581	73.678	5.9946

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEL-POINT
	62.187	3.0670	3.7495	10082.	1.4788	-21.921

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	1.4788	16.018	1.0748	0.024680	157.78

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.076468	0.076456	1.1413	2702.3	2704.4	294.34	151.45

WET CORRECTION FACTOR = 0.85410 EXHAUST MOLE. WT. = 27.957 EXHAUST DENSITY = 0.072414 EXHAUST FLOW RATE = 14325.

MEASURED CONC.	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1099.8	564.50	5.3114	11.802	0.060566
CORRECTED CONC. TO WET BASIS			4.5364	10.080	0.051729

EMISSION RATE	HC	NOX	CO
	0.56560	0.96229	47.179
EMISSION MASS/MODE	0.0028280	0.0048115	0.23590
EMISSION MASS/RATED HP	1.7675E-05	3.0072E-05	0.0014743
MODE EMISS./STD. CYCLE	0.93026	2.0048	3.5104

CAL. FUEL AIR RATIO = 0.078274 MEAS. FUEL AIR RATIO = 0.076468 DIFF. MEAS. & CAL. F/A PERCENT = 2.3617

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	415.01	430.38	425.49	126.56

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1040.2	177.64	1045.4	1278.6	1393.3	1393.9

ENGINE OIL	SOILT	OILP	MANIFOLD PRESSURE
	187.75	217.81	70.087

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	283.92	2642.0	29.028

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	58.407	58.714	121.19	56.112

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	88.334	2.0254	53.271	1976.4

CELL TEMP. = 81.069 HEATER TEMP = 88.248 COOLER TEMP = 56.720

NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDET REC 04/01/76 18:08:44.064

FAC SERED

LEANOUT 25 BTDC TO CL APP 59 DEG. OF HUM MODE = 0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BARMETRIC PRESSURE = 28.890 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	GFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	58.850	28.898	168.02	765.17	0.12096	14.486

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	67.053	5.3957	44.990	58.527	57.612	6.0627

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	62.142	3.0803	3.8157	10106.	1.4964	-21.746

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	1.4964	18.100	1.1066	0.025411	119.66

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.075293	0.075281	1.1238	2432.0	2433.7	258.47	119.69

WET CORRECTION FACTOR = 0.85425 EXHAUST MOLE. WT. = 28.055 EXHAUST DENSITY = 0.072667 EXHAUST FLOW RATE = 11324.

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	O2 DRY
	1250.4	1094.3	4.8585	12.046
CORRECTED CONC. TO WET BASIS			4.1503	0.10479

EMISSION RATE	HC	NOX	CO
EMISSION MASS/MODE	0.50835	1.4747	34.122
EMISSION MASS/RATED HP	0.042362	0.12289	2.8435
MODE EMIS./STD. CYCLE %	0.00026476	0.00076806	0.017772
	13.935	51.204	42.313

CAL. FUEL AIR RATIO = 0.077144 MEAS. FUEL AIR RATIO = 0.075293 DIFF MEAS. &amp; CAL. F/A PERCENT = 2.4577

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	395.44	407.76	418.15	123.72

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1302.3	-117.73	956.32	1299.6	1341.9	1342.8

ENGINE OIL	ENILT	SOILT	OILP	MANIFOLD PRESSURE = 26.124
	187.52	250.90	69.615	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 28.963
	246.03	2372.5	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	58.524	58.850	78.574	55.421

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	88.858	2.0288	53.260	1977.0

CELL TEMP. = 82.046 HEATER TEMP = 87.971 COOLER TEMP = 56.785

NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDET REC 04/01/76 18:12:56.792 FAC SEX15 PGM C003 R01G 2748

LEANOUT 25 BTDC TO CL APP 59 DEG. 0% HUM MEDE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.890 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	60.177	28.895	103.40	466.31	0.078469	14.302

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	70.235	5.4917	44.905	42.659	38.584	6.0889

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	62.673	3.1160	3.6286	10171.	1.5063	-21.161

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	1.5063	0.31003	1.1830	0.027166	65.768

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.083100	0.083086	1.2403	2352.4	2354.2	146.63	65.677

WET CORRECTION FACTOR = 0.86752 EXHAUST MOLE. WT. = 27.436 EXHAUST DENSITY = 0.071038 EXHAUST FLOW RATE = 7080.2

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1679.6	366.47	6.7928	11.027	0.12081
CORRECTED CONC. TO WET BASIS			5.8928	9.5665	0.10481

	HC	NOX	CO
EMISSION RATE	0.42691	0.30877	30.291
EMISSION MASS/MODE	0.042691	0.030877	3.0291
EMISSION MASS/RATED HP	0.00026682	0.00019298	0.018932
MODE EMTS./STD. CYCLE %	14.043	12.865	45.075

CAL. FUEL AIR RATIO = 0.081701 MEAS. FUEL AIR RATIO = 0.083100 DIFF MEAS. & CAL. F/A PERCENT = -1.5831

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	334.34	343.90	346.24	114.24

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1051.0	-16.179	1029.1	1093.6	1167.3	1166.2

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.129
	187.11	153.38	69.535	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 28.970
	139.10	2287.2	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	59.843	60.177	63.715	56.048

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	89.705	3.0301	53.361	2387.5

CFLT TEMP. = 81.659 HEATER TEMP = 88.013 COOLER TEMP = 57.215

NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDEII REC 04/01/76 18:22:16.050 FAC SEX15 PGM C003 RDG 2744

LEANOUT 25BTDC TO CL APP 59 DEG OX HUM MCDE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.890 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	57.656	28.889	208.70	961.74	0.17031	14.666

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	65.556	5.3672	45.030	73.720	71.335	6.0084

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	61.268	3.0828	3.7235	10110.	1.7713	-20.336

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	1.7713	11.241	1.2396	0.028466	156.24

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.074173	0.074160	1.1071	2709.7	2711.7	291.21	150.25

WET CORRECTION FACTOR = 0.85734 EXHAUST MOLE. WT. = 28.159 EXHAUST DENSITY = 0.072910 EXHAUST FLOW RATE = 14171.

MEASURED CONC.	PART PER MILLION WET		PER CENT
	HC PPM	NOX PPM	CO DRY
	996.80	811.90	3.99000
CORRECTED CONC. TO WET BASIS			C2 DRY
			12.501
			0.069287
			0.059403

EMISSION RATE	HC	NOX	CO
	0.50713	1.3692	35.195
EMISSION MASS/MODE	0.0025356	0.0068460	0.17598
EMISSION MASS/RATED HP	1.5848E-05	4.2787E-05	0.0010999
MODE EMIS./STD. CYCLE %	0.83409	2.8525	2.6187

CAL. FUEL AIR RATIO = 0.075325 MEAS. FUEL AIR RATIO = 0.074173 DIFF MEAS. & CAL. F/A PERCENT = 1.5525

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	438.99	452.06	445.55	129.45

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1082.1	183.40	1086.3	1304.5	1446.7	1447.6

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.065
	187.74	209.02	70.631	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.019
	294.57	2598.1	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	57.312	57.656	127.50	55.631

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	88.010	2.0330	53.248	1980.5

CELL TEMP. = 80.875 HEATER TEMP = 88.200 COOLER TEMP = 55.561

NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDEII REC 04/01/76 18:26:28.648 FAC SEX15 PGM C003 RDG 2745

LEANOUT 25RTDC TO CL APP 59 DEG 0% HUM MCDE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.890 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	58.352	28.889	169.94	773.81	0.14054	14.486

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	67.151	5.4104	44.987	63.082	58.605	6.0801

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	61.502	3.0548	3.7692	10059.	1.7501	-20.181

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	1.7501	31.817	1.2714	0.029195	119.77

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.075736	0.075722	1.1304	2434.3	2436.3	258.59	119.86

WET CORRECTION FACTOR = 0.87011 EXHAUST MOLE. WT. = 28.028 EXHAUST DENSITY = 0.072571 EXHAUST FLOW RATE = 11472.

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY
	1067.4	1476.9	3.74370	12.511
CORRECTED CONC. TO WET BASIS			CO DRY	CO2 DRY
			3.2574	10.886
				0.18871

	HC	NOX	CO
EMISSION RATE	0.43961	2.0163	27.130
EMISSION MASS/MODE	0.036634	0.16803	2.2609
EMISSION MASS/RATED HP	0.00022896	0.0010502	0.014130
MODE EMIS./STD. CYCLE %	12.051	70.011	33.644

CAL. FUEL AIR RATIO = 0.074411 MEAS. FUEL AIR RATIO = 0.075736 DIFF MEAS. & CAL. F/A PERCENT = -1.749%

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	399.70	409.45	413.86	124.60

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1142.8	-454.00	772.97	1353.8	1376.9	1377.6

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 26.357
	187.46	262.91	69.815	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 28.966
	264.98	2346.5	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	58.027	58.352	192.49	55.454

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	88.779	2.9619	53.279	2363.6

CELL TEMP. = 81.712 HEATER TEMP = 88.338 COOLER TEMP = 56.729

NASA-LEWIS		PRELIMINARY DATA		04/01/76	CADDEII	REC 04/01/76 18:32:23.083		FAC SEX15	PGM 0003	RDG 2746
LEANOUT 25RTDC TO CL APP 59 DEG OX HUM				MODE = 5.0000		NO. SCANS = 5				
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 28.890		RATED HP. = 160.00		HC RATIO = 2.1250		
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL				
	59.897	28.884	103.11	462.98	0.085331	14.300				
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP				
	71.002	5.5106	44.885	38.823	36.295	6.0396				
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT				
	62.196	3.0117	3.6067	9980.0	1.6588	-20.161				
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP					
	1.6588	0.26203	1.2902	0.029626	65.551					
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP			
	0.078394	0.078379	1.1701	2352.4	2354.6	146.20	65.483			
WET CORRECTION FACTOR = 0.86403		EXHAUST MOLE. WT. = 27.810		EXHAUST DENSITY = 0.072006		EXHAUST FLOW RATE = 6934.9				
MEASURED CONC.	PART PER MILLION WET		PER CENT							
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY					
	1516.9	598.78	5.19590	11.779	0.12757					
CORRECTED CONC. TO WET BASIS			4.4894	10.177	0.11023					
EMISSION RATE	HC	NOX	CO							
	0.37766	0.49414	22.603							
EMISSION MASS/MODE	0.037766	0.049414	2.2603							
EMISSION MASS/RATED HP	0.00023604	0.00030884	0.014127							
MODE EMIS./STD. CYCLE %	12.423	20.589	33.635							
CAL. FUEL AIR RATIO = 0.078068		MEAS. FUEL AIR RATIO = 0.078394		DIFF MEAS. & CAL. F/A PERCENT = -0.41529						
CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4						
	337.75	344.52	343.59	115.02						
EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2				
	1080.2	-383.55	1191.1	1139.6	1183.4	1182.3				
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.121						
	186.95	189.84	69.903							
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 28.934							
	150.85	2318.4								
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2						
	59.527	59.897	149.90	55.959						
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW						
	89.984	0.074007	53.210	273.98						
CELL TEMP. = -82.240	HEATER TEMP = 88.504		COOLER TEMP = 56.721							

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NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDEII REC 04/01/76 18:41:20.680 FAC SEX15 PGM C003 RDG 2747

LEANOUT 25BTDC TO CL APP 59 DEG OX HUM MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.890 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	57.927	28.904	207.74	956.67	0.17582	14.657

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	65.924	5.3714	45.020	72.604	71.635	6.0021

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	61.628	3.1296	3.8323	10196.	1.8193	-19.896

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	1.8193	31.245	1.2865	0.029543	156.33

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.074880	0.074866	1.1176	2698.2	2700.3	292.70	150.37

WET CORRECTION FACTOR = 0.86143 EXHAUST MOLE. WT. = 28.099 EXHAUST DENSITY = 0.072756 EXHAUST FLOW RATE = 14135.

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM NOX PPM CO DRY CO2 DRY O2 DRY	
	997.50 742.25 3.92780 12.460 0.064626	
CORRECTED CONC. TO WET BASIS		3.3835 10.734 0.055671

	HC	NOX	CO
EMISSION RATE	0.50621	1.2486	34.724
EMISSION MASS/MODE	0.0025311	0.0062430	0.17362
EMISSION MASS/RATED HP	1.5819E-05	3.9019E-05	0.0010851
MODE EMIS./STD. CYCLE %	0.83258	2.6012	2.5836

CAL. FUEL AIR RATIO = 0.075250 MEAS. FUEL AIR RATIO = 0.074880 DIFF MEAS. & CAL. F/A PERCENT = 0.49424

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	442.25	452.43	446.46	129.61

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1973.9	164.65	1122.6	1280.3	1452.3	1452.7

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.003
	187.74	215.82	69.875	

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.000
	290.19	2658.8	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	57.638	57.927	162.43	55.672

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	89.059	2.0139	53.247	1969.8

CELL TEMP. = 81.219 HEATER TEMP = 88.878

COOLER TEMP = 55.255



NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDEII REC 04/01/76 18:48:38.646 FAC SEX15 PGM C003 RDG 2748  
 LEANOUT 25BTDC TO CL APP 59 DEG 0% HUM MODE = 4.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.890 RATED HP. = 160.00 HC RATIO = 2.1250  
 COMB. AIR TEMP 58.470 PRESS 28.886 CFM 168.19 DRY FLOW 765.50 VAPOR FLOW 0.12978 PRESS TOTAL 14.482  
 COMB. FUEL TEMP 67.142 PRESS 5.4065 DENSITY 44.988 TURBO FLOW 58.775 FLOW TRON 56.121 FPIP 5.9910  
 COOLING AIR TEMP 61.691 UDEL-HOOD 3.1423 DEL-HOOD 3.7902 FLOW 10219. REL-HUM 1.6262 DEW-POINT -20.986  
 REL-HUM 1 2 HUMIDITY % H2O VAPOR CORRECTED HP  
 1.6262 12.195 1.1867 0.027251 119.83  
 ENG. COND. F/A DRY F/A WET EQU. RATIO RPM-1 RPM-2 TORQUE BHP  
 0.073312 0.073299 1.0942 2432.7 2434.3 258.87 119.91  
 WET CORRECTION FACTOR = 0.85788 EXHAUST MOLE. WT. = 28.232 EXHAUST DENSITY = 0.073098 EXHAUST FLOW RATE = 11241.  
 MEASURED CONC. PART PER MILLION WET PER CENT  
 HC PPM NOX PPM CO DRY CO2 DRY O2 DRY  
 1051.6 1439.7 3.77030 12.550 0.16884  
 CORRECTED CONC. TO WET BASIS 3.2344 10.766 0.14484  
 EMISSION RATE HC NOX CO  
 0.42441 1.9260 26.398  
 EMISSION MASS/MODE 0.035367 0.16050 2.1998  
 EMISSION MASS/RATED HP 0.00022104 0.0010031 0.013749  
 MODE EMIS./STD. CYCLE % 11.634 66.876 32.735  
 CAL. FUEL AIR RATIO = 0.074597 MEAS. FUEL AIR RATIO = 0.073312 DIFF MEAS. & CAL. F/A PERCENT = 1.7523  
 CYL TEMP DEG. F CYL-1 CYL-2 CYL-3 CYL-4  
 398.75 404.08 411.72 319.05  
 EXT GAS TEMP DEG. F EXT-1 EXT-2 EXT-3 EXT-4 SEXT-1 SEXT-2  
 598.35 -454.00 1143.2 1376.9 1368.9 1369.5  
 ENGINE OIL EOILT SOILT OILP MANIFOLD PRESSURE = 26.331  
 187.32 271.55 69.811  
 DYNO COND. TORQUE RPM CYL. BACK PRESSURE = 28.973  
 246.32 2371.0  
 INDUCTION AIR TAIRT1 TAIRT2 TAIRT1 TAIRT2  
 58.126 58.470 151.56 55.567  
 ORIFICE AIR TEMP DELTAP ORFP FLOW  
 89.853 2.0299 53.257 1975.7  
 CELL TEMP. = 82.838 HEATER TEMP = 89.189 COOLER TEMP = 57.071



NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDEII REC 04/01/76 18:53:10.117 FAC SEX15 PGM C003 RDG 2749

LEANOUT 25BTDC TO CL APP 59 DEG 0% HUM MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.890 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.807	28.887	102.66	460.93	0.071021	14.300

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	70.520	5.5106	44.898	40.553	36.760	6.0981

CCCLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	62.025	3.0742	3.5547	10095.	1.3913	-22.146

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	1.3913	23.978	1.0736	0.024768	64.979

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.079751	0.079738	1.1903	2350.6	2352.3	145.06	64.922

WET CORRECTION FACTOR = 0.86917 EXHAUST MOL. WT. = 27.700 EXHAUST DENSITY = 0.071723 EXHAUST FLOW RATE = 6940.1

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM	CO2 DRY
	NOX PPM	O2 DRY
	1581.1	11.753
	602.08	0.13181
	5.25330	0.11457
	4.5660	
CORRECTED CONC. TO WET BASIS		

EMISSION RATE	HC	NOX	CO
	0.39392	0.49724	23.006
EMISSION MASS/MODE	0.039392	0.049724	2.3006
EMISSION MASS/RATED HP	0.00024620	0.00031077	0.014378
MODE EMIS./STD. CYCLE %	12.958	20.718	34.234

CAL. FUEL AIR RATIO = 0.078206 MEAS. FUEL AIR RATIO = 0.079751 DIFF MEAS. & CAL. F/A PERCENT = -1.9373

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	337.85	342.42	343.89	-136.79

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	830.20	-454.00	1263.1	1182.7	1187.3	1186.0

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.125
	186.87	89.973	69.523	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 28.937
	137.08	2308.2	

INDUCTION AIR	IAIPT1	IAIRT2	TAIRT1	TAIRT2
	59.446	59.807	103.13	56.040

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	90.751	1.0374	53.271	1425.8

CELL TEMP. = 82.345 HEATER TEMP = 89.410 COOLER TEMP = 57.008

NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDEII REC 04/01/76 18:57:03.048 FAC SEX15 PGM C003 RDG 2750  
 LEANOUT 25 BTDC TO CL APP 59 DEG 0% HUM MODE = 3.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.900 RATED HP. = 160.00 HC RATIO = 2.1250  
 COMB. AIR TEMP 59.906 PRESS 28.927 CFM 209.65 DRY FLOW 965.64 VAPOR FLOW 0.14032 PRESS TOTAL 14.663  
 COMB. FUEL TEMP 68.949 PRESS 5.3975 DENSITY 44.939 TURBO FLOW 65.299 FLOW TRON 65.364 FPIP 6.0330  
 COOLING AIR TEMP 63.114 INDEL-HOOD 3.2563 DEL-HOOD 3.8898 FLOW 10423. REL-HUM 1.3407 DEW-POINT -22.481  
 REL-HUM 1 1.3407 2 16.824 HUMIDITY 1.0172 % H2O VAPOR CORRECTED HP 0.023359 155.15  
 ENG. COND. F/A DRY 0.067690 F/A WET 0.067680 EQU. RATIO 1.0103 RPM-1 2703.7 RPM-2 2705.8 TORQUE 289.55 BHP 149.06  
 WET CORRECTION FACTOR = 0.85635 EXHAUST MOLE. WT. = 28.639 EXHAUST DENSITY = 0.074153 EXHAUST FLOW RATE = 13905.  
 MEASURED CONC. PART PER MILLION WET HC PPM 793.08 NOX PPM 2131.0 CO DRY 1.59250 PER CENT CO2 DRY 13.572 O2 DRY 0.20290  
 CORRECTED CONC. TO WET BASIS CO 1.3638 CO2 11.622 O2 0.17375  
 EMISSION RATE HC 0.39592 NOX 3.5263 CO 13.768  
 EMISSION MASS/MODE 0.0019796 0.017632 0.068840  
 EMISSION MASS/RATED HP 1.2372E-05 0.00011020 0.00043025  
 MODE EMIS./STD. CYCLE % 0.65118 7.3466 1.0244  
 CAL. FUEL AIR RATIO = 0.069907 MEAS. FUEL AIR RATIO = 0.067690 DIFF MEAS. & CAL. F/A PERCENT = 3.2756  
 CYL TEMP DEG.F CYL-1 421.85 CYL-2 431.95 CYL-3 431.31 CYL-4 330.69  
 EXT GAS TEMP DEG.F EXT-1 1298.1 EXT-2 246.77 EXT-3 1212.8 EXT-4 1391.2 SEXT-1 1453.0 SEXT-2 1453.0  
 ENGINE OIL EOILT 187.85 SOILT 144.06 OILP 69.551 MANIFOLD PRESSURE = 27.899  
 DYNO COND. TORQUE 282.83 RPM 2620.0 CYL. BACK PRESSURE = 29.009  
 INDUCTION AIR IAIRT1 59.572 IAIRT2 59.906 TAIRT1 65.138 TAIRT2 55.808  
 ORIFICE AIR TEMP 91.474 DELTAP 1.0587 ORFP 53.292 FLOW 1439.2  
 CELL TEMP. = 83.489 HEATER TEMP = 89.555 COOLER TEMP = 56.361

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NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDEII REC 04/01/76 19:07:30.479 FAC SEX15 PGM C003 RDG 2751

LEANOUT 25 BTDC TO CL APP 59 DEG 0% HUM MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.900 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	57.773	28.900	181.34	829.03	0.10212	14.540

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	67.035	5.3975	44.990	56.707	56.325	6.0447

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	61.142	3.2281	3.8514	10373.	1.2164	-24.041

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	1.2164	15.418	0.86226	0.019800 119.86

ENG. COND.	F/A DRY	F/A WFT	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.067940	0.067932	1.0140	2431.4	2432.4	259.30	120.04

WET CORRECTION FACTOR = 0.85765 EXHAUST MOLE, WT. = 28.621 EXHAUST DENSITY = 0.074108 EXHAUST FLOW RATE = 11948.

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	293.53	1576.7	2.4547	12.905	0.67889
CORRECTED CONC. TO WET BASIS			2.1053	11.068	0.58225

	HC	NOX	CO
EMISSION RATE	0.12591	2.2418	18.262
EMISSION MASS/MODE	0.010492	0.18681	1.5219
EMISSION MASS/RATED HP	6.5577E-05	0.0011676	0.0095116
MODE EMIS./STD. CYCLE %	3.4514	77.839	22.647

CAL. FUEL AIR RATIO = 0.069958 MEAS. FUEL AIR RATIO = 0.067940 DIFF MEAS. & CAL. F/A PERCENT = 2.9697

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	402.51	411.63	374.06	189.95

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1285.7	-454.00	1099.3	1343.8	1491.9	1492.8

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 27.245
	187.34	148.78	69.707	

DYNO COND.	TORQUE	RPM	CYL BACK PRESSURE = 29.038
	238.35	2355.7	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	57.411	57.773	137.46	55.351

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	90.149	1.0543	53.292	1438.0

CELL TEMP. = 82.108 HEATER TEMP = 89.970 COOLER TEMP = 56.658

NASA-LEWIS		PRELIMINARY DATA		04/01/76		CADDEII		REC 04/01/76 19:11:46.024		FAC SEX15		PGH C003		RDG 2752	
LEANOUT 25 BTDC TO CL APP 59 DEG 0% HUM								MODE = 5.0000		NO. SCANS = 5					
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 28.900				RATED HP. = 160.00		HC RATIO = 2.1250			
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		59.238		28.904		104.49		469.49		0.054291		14.309			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		70.431		5.5259		44.900		36.294		32.535		6.1176			
COOLING AIR		TEMP		INLET-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		61.628		3.1595		3.8121		10250.		1.0664		-24.662			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		1.0664		0.31603		0.80946		0.018588		65.116					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.069299		0.069291		1.0343		2353.6		2355.4		145.30		65.112	
WET CORRECTION FACTOR = 0.85481				EXHAUST MOLE. WT. = 28.509				EXHAUST DENSITY = 0.073818				EXHAUST FLOW RATE = 6801.6			
MEASURED CONC.		PART PER MILLION WET				PER CENT									
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		1104.2		1223.8		2.45240		13.112		0.28683					
CORRECTED CONC. TO WET BASIS						2.0963		11.208		0.24518					
EMISSION RATE		HC		NOX		CO									
		0.26962		0.99055		10.352									
EMISSION MASS/MODE		0.026962		0.099055		1.0352									
EMISSION MASS/RATED HP		0.00016851		0.00061909		0.0064698									
MODE EMIS./STD. CYCLE %		8.8692		41.273		15.404									
CAL. FUEL AIR RATIO = 0.071561				MEAS. FUEL AIR RATIO = 0.069299				DIFF MEAS. & CAL. F/A PERCENT = 3.2639							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		346.51		350.28		355.30		420.22							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		858.04		-114.33		1485.6		1276.2		1263.7		1262.2			
ENGINE OIL		EOILT		SOILT		OILP		MANIFOLD PRESSURE = 18.398							
		186.78		198.67		69.563									
DYNO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 28.931									
		151.83		2278.2											
INDUCTION AIR		IAIRT1		IAIRT2		IAIRT1		IAIRT2							
		58.868		59.238		67.939		56.048							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		90.899		2.9574		53.276		2357.3							
CELL TEMP. = 82.293				HEATER TEMP = 90.074				COOLER TEMP = 56.945							

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NASA-LEWIS		PRELIMINARY DATA		04/01/76		CADDEII		REC 04/01/76 19:14:52.241		FAC SEX15-		PGM C003		RDG 2753	
LEANOUT 25 BTDC TO CL APP 59 DEG 0% HUM								MCDE = 3.0000		NO. SCANS = 5					
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 28.900				RATED HP. = 160.00		HC RATIO = 2.1250			
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		59.093		28.929		209.04		963.50		0.11122		14.668			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		68.279		5.3981		44.957		66.400		65.148		6.0396			
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		62.718		3.1066		3.7528		10154.		1.0969		-24.487			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		1.0969		9.9830		0.80807		0.018556		154.64					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.067617		0.067609		1.0092		2701.9		2703.3		289.08		148.72	
WET CORRECTION FACTOR = 0.85632				EXHAUST MOLE. WT. = 28.644				EXHAUST DENSITY = 0.074165				EXHAUST FLOW RATE = 13871.			
MEASURED CONC.		PART PER MILLION WET				PER CENT									
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		820.08		2171.0		1.56900		13.584		0.20824					
CORRECTED CONC. TO WET BASIS						1.3436		11.633		0.17832					
EMISSION RATE		HC		NOX		CO									
		0.40838		3.5836		13.531									
EMISSION MASS/MODE		0.0020419		0.017918		0.067653									
EMISSION MASS/RATED HP		1.2762F-05		0.00011199		0.00042283									
MODE EMIS./STD. CYCLE %		0.67167		7.4658		1.0067									
CAL. FUEL AIR RATIO = 0.069858				MEAS. FUEL AIR RATIO = 0.067617				DIFF MEAS. & CAL. F/A PERCENT = 3.3142							
CYL TEMP DEG. F		CYL-1		CYL-2		CYL-3		CYL-4							
		429.18		438.35		437.59		355.93							
EXT GAS TEMP DEG. F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		1454.8		379.83		1398.4		1410.2		1480.0		1479.8			
ENGINE OIL		EOILT		SOILT		OILP		MANIFOLD PRESSURE = 27.973							
		187.59		189.52		69.491									
DYNO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.049									
		290.88		2619.4											
INDUCTION AIR		TAIRT1		TAIRT2		TAIRT1		TAIRT2							
		58.768		59.093		106.20		55.674							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		91.421		1.9783		53.259		1949.1							
CELL TEMP. = 82.996				HEATER TEMP = 93.143				COOLER TEMP = 55.264							

NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDEII REC 04/01/76 19:17:51.958 FAC SEX15 P34 C003 RDG 2754

LFANOUT 25 BTDC TO CL APP 59 DEG 0% HUM MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BARMETRIC PRESSURE = 28.910 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.988	28.933	179.56	818.26	0.091145	14.518

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	68.761	5.4182	44.944	57.342	56.367	6.0807

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	62.448	3.1794	3.6570	10286.	1.0146	-24.832

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	1.0146	33.101	0.77972	0.017905 120.45

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.068886	0.068878	1.0281	2430.0	2431.9	260.09	120.34

WET CORRECTION FACTOR = 0.85970 EXHAUST MOLE. WT. = 28.547 EXHAUST DENSITY = 0.073914 EXHAUST FLOW RATE = 11834.

MEASURED CONC.	PART. PER MILLION WET	PER CENT
	HC PPM NOX PPM CO DRY CO2 DRY CO2 DRY	
	428.44 1791.3 2.74250 12.711 0.69909	
CORRECTED CONC. TO WET BASIS		2.3577 10.928 0.60101

EMISSION RATE	HC	NOX	CO
	0.18202	2.5226	20.257
EMISSION MASS/MODE	0.015169	0.21022	1.6881
EMISSION MASS/RATED HP	9.4804E-05	0.0013139	0.010550
MODE EMIS./STD. CYCLE %	4.9897	87.591	25.120

CAL. FUEL AIR RATIO = 0.070568 MEAS. FUEL AIR RATIO = 0.068886 DIFF MEAS. & CAL. F/A PERCENT = 2.4420

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	411.28	420.95	391.91	558.64

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1367.6	-131.57	1246.4	1362.2	1456.4	1456.7

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 27.201
	187.38	263.69	69.207	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.109
	247.56	2379.1	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	59.653	59.988	91.093	56.217

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	91.996	0.050505	53.749	198.58

CFLI TEMP. = 83.778 HEATER TEMP = 90.233 COOLER TEMP = 55.660

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NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDEII REC 04/01/76 19:21:02.491 FAC SEX15 PGM C003 RDG 2759

LEANOUT 25 BTDC TO CL APP 59 DEG 0% HUM MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.910 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	60.294	28.902	104.68	471.10	0.048782	14.316

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	71.554	5.5235	44.870	37.788	34.005	6.0498

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	60.366	3.0803	3.6560	10106.	0.92006	-25.437

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	0.92006	11.489	0.72485	0.016645	66.491

ENG. COND.	F/A DRY	F/A WET	EQ. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.072183	0.072175	1.0774	2353.0	2354.7	148.20	66.394

WET CORRECTION FACTOR = 0.86968 EXHAUST MOLE. WT. = 28.328 EXHAUST DENSITY = 0.073347 EXHAUST FLOW RATE = 8887.2

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	C2 DRY
	1076.0	1246.1	2.35580	13.174
CORRECTED CONC. TO WET BASIS			2.0488	11.457

	HC	NOX	CO
EMISSION RATE	0.26604	1.0213	10.244
EMISSION MASS/MODE	0.026604	0.10213	1.0244
EMISSION MASS/RATED HP	0.00016628	0.00063890	0.0064027
MODE EMISS./STD. CYCLE %	8.7514	42.553	15.244

CAL. FUEL AIR RATIO = 0.071328 MEAS. FUEL AIR RATIO = 0.072183 DIFF MEAS. & CAL. F/A PERCENT = -1.1865

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	352.05	355.87	356.47	445.97

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	951.99	186.38	1420.9	1196.5	1271.1	1270.2

ENGINE OIL	OIL T	SOIL T	OIL P	MANIFOLD PRESSURE
	187.07	137.23	69.427	18.535

DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	150.19	2295.0	28.965

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	60.005	60.294	63.035	55.481

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	91.430	2.0405	53.036	1977.6

CELL TEMP. = 89.497 HEATER TEMP = 89.929 COOLER TEMP = 51.168

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NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDEII REC 04/01/76 20:09:31.067 FAC SER15 PGM C003 BOG 2757

LEANOUT 25 BYDC I & T 50 DEG. 30% HUM MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.920 RATED HP = 160.00 FC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	60.799	28.926	11.175	49.680	0.17107	14.206

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	74.648	5.8113	44.788	3.9738	3.4143	6.1506

COOLING AIR	TEMP	UNEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	66.238	0.012454	0.58562	2287.7	29.661	29.629

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	29.661	32.909	24.104	0.55352	0.50655

ENG. COND.	E/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.068727	0.068491	1.0258	604.08	601.02	4.3754	0.50326

WET CORRECTION FACTOR = 0.89457 EXHAUST MOLE. WT. = 28.560 EXHAUST DENSITY = 0.073949 EXHAUST FLOW RATE = 726.29

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	17617.	37.092	1.5304	10.657	4.0444
CORRECTED CONC. TO WET BASIS			1.3690	9.5335	3.6180

	HC	NOX	CO
EMISSION RATE	0.45557	0.0031793	0.71589
EMISSION MASS/MODE	0.0075928	5.2988E-05	0.011932
EMISSION MASS/RATED HP	4.7455E-05	3.3118E-07	7.4572E-05
MODE EMIS./STD. CYCLE %	2.4976	0.022078	0.17755

CAL. FUEL AIR RATIO = 0.066906 MEAS. FUEL AIR RATIO = 0.068727 DIFF MEAS. & CAL. F/A PERCENT = 2.6497

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	231.54	273.56	252.42	-49.595

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1347.0	-454.00	202.08	629.20	734.71	724.03

ENGINE OIL	EOILT	SOILT	OILT	MANIFOLD PRESSURE
	158.50	282.98	45.129	11.693

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE
	6.1998	597.18	28.850

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	60.032	60.799	183.70	55.037

OFFICE AIR	TEMP	DELTAP	ORFP	FLOW
	86.409	4.8700	53.479	3017.0

CELL TEMP. = 78.271 HEATER TEMP = 85.396 COOLER TEMP = 46.085



NASA-LEWIS		PRELIMINARY DATA		04/01/76	CADDEII	REC 04/01/76 20:12:51.392		FAC SEX15	PGM C003	RDG 2758	
LEANOUT 25 BTDC I & T 59 DEG. 30% HUM				MODE = 2.0000		NO. SCANS = 5					
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 28.920			RATED HP. = 160.00		HC RATIO = 2.1250			
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL					
	58.687	28.919	18.306	81.285	0.27911	14.205					
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP					
	72.337	5.7588	44.850	7.2785	6.0276	6.1368					
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT					
	64.830	0.017159	0.67972	2311.3	31.890	29.574					
REL-HUM	1	2	HUMIDITY	% H2O VAPOR		CORRECTED HP					
	31.890	23.838	24.035	0.55196		1.0710					
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP				
	0.074154	0.073900	1.1068	1204.1	1205.0	4.6505	1.0662				
WET CORRECTION FACTOR = 0.84800		EXHAUST MOLE. WT. = 28.160		EXHAUST DENSITY = 0.072914		EXHAUST FLOW RATE = 1201.3					
MEASURED CONC.	PART PER MILLION WET		PER CENT		136						
	HC PPM	NOX PPM	CO DRY	CO2 DRY							O2 DRY
	1960.2	63.906	4.6196	11.602							0.13053
CORRECTED CONC. TO WET BASIS			3.9174	9.8382	0.11069						
		HC	NOX	CO							
EMISSION RATE		0.084536	0.0091357	3.4165							
EMISSION MASS/MODE		0.015498	0.0016749	0.62637							
EMISSION MASS/RATED HP		9.6864E-05	1.0468E-05	0.0039148							
MODE EMIS./STD. CYCLE %		5.0981	0.69786	9.3209							
CAL. FUEL AIR RATIO = 0.077414		MEAS. FUEL AIR RATIO = 0.074154		DIFF MEAS. & CAL. F/A PERCENT = 4.3956							
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4							
	290.76	323.35	305.26	-201.09							
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2					
	897.63	-454.00	226.54	652.50	731.51	722.11					
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 7.8491							
	159.42	399.92	56.602								
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 28.976								
	3.0459	1203.0									
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2							
	58.027	58.687	159.57	55.628							
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW							
	84.253	4.9015	53.448	3031.5							
CELL TEMP. = 76.785		HEATER TEMP = 85.077		COOLER TEMP = 48.263							

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NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDET REC 04/01/76 20:15:38.717 FAC SEX15 PGM C003 RDG 2759

LEANOUT 25 BTDC I & T 59 DEG. 30% HUM

MODE = 6.0000

NO. SCANS = 5

ENGINE TIMING = 25.000

DEG.

BAROMETRIC PRESSURE = 28.920

RATED HP. = 160.00

HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.075	28.912	17.637	78.323	0.26595	14.204

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	71.759	5.7633	44.865	7.0367	5.7246	6.1380

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	66.238	0.040130	0.65287	2425.9	31.099	29.359

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	31.099	69.547	23.769	0.54581	1.4998

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.073089	0.072842	1.0909	1207.3	1206.2	6.4923	1.4924

WET CORRECTION F<sub>STOR</sub> = 0.84565 EXHAUST MOLE. WT. = 28.250 EXHAUST DENSITY = 0.073147 EXHAUST FLOW RATE = 1152.7

MEASURED CONC.	PART PER MILLION WET		PER CENT
	HC PPM	NOX PPM	CO DRY
	1642.0	67.321	4.3516
CORRECTED CONC. TO WET BASIS			CO2 DRY
			11.798
			0.082388
			9.9774
			0.069672

EMISSION RATE	HC	NOX	CO
	0.067945	0.0092341	3.0794
EMISSION MASS/MODE	0.0033972	0.00046171	0.15397
EMISSION MASS/RATED HP	2.1233E-05	2.8857E-06	0.00096232
MODE EMIS./STD. CYCLE %	1.1175	0.19238	2.2912

CAL. FUEL AIR RATIO = 0.076767 MEAS. FUEL AIR RATIO = 0.073089 DIFF MEAS. & CAL. F/A PERCENT = 5.0316

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	352.60	373.64	357.24	-162.19

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1109.0	-454.00	479.49	633.76	786.10	781.55

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 7.8019
	164.93	273.47	55.466	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 28.850
	11.420	1194.8	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	58.434	59.075	164.20	55.545

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	84.375	4.8237	53.219	3010.0

CELL TEMP. = 77.475 HEATER TEMP = 84.834 COOLER TEMP = 46.754

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NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDEII REC 04/01/76 20:21:11.818 FAC SEX15 PGM C003 RDG 2761

LEANOUT 1 & T 25 BTDC 59 DEG 30% HUM MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.920 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR TEMP 60.213 PRESS 28.918 CFM 11.673 DRY FLOW 51.874 VAPOR FLOW 0.17824 PRESS TOTAL 14.204

COMB. FUEL TEMP 73.334 PRESS 5.8068 DENSITY 44.823 TURBO FLOW 3.9769 FLOW TRON 3.3573 FPIP 6.1446

COOLING AIR TEMP 64.093 UDEL-HOOD 0.0099633 DEL-HOOD 0.60970 FLOW 2275.2 REL-HUM 30.215 DEW-POINT 29.584

REL-HUM 1 30.215 2 27.253 HUMIDITY 24.052 % H2O VAPOR 0.55231 CORRECTED HP 0.11256

ENG. COND. F/A DRY 0.064720 F/A WET 0.064499 EQU. RATIO 0.96598 RPM-1 602.64 RPM-2 602.04 TORQUE 0.97510 BHP 0.11189

WET CORRECTION FACTOR = 0.86461 EXHAUST MOLE. WT. = 28.781 EXHAUST DENSITY = 0.074521 EXHAUST FLOW RATE = 743.55

MEASURED CONC. PART PER MILLION WET HC PPM 14262. NOX PPM 36.602 CO DRY 1.76680 PER CENT CO2 DRY 11.023 O2 DRY 3.3977  
CORRECTED CONC. TO WET BASIS CO DRY 1.5276 PER CENT CO2 DRY 9.5307 O2 DRY 2.9377

EMISSION RATE HC 0.38071 NOX 0.0032386 CO 0.82461  
EMISSION MASS/MODE 0.0063452 5.3977E-05 0.013743  
EMISSION MASS/RATED HP 3.9658E-05 3.3736E-07 8.5897E-05  
MODE EMIS./STD. CYCLE % 2.0872 0.022490 0.20452

CAL. FUEL AIR RATIO = 0.067880 MEAS. FUEL AIR RATIO = 0.064720 DIFF MEAS. & CAL. F/A PERCENT = 4.8815

CYL TEMP DEG. F CYL-1 255.65 CYL-2 288.15 CYL-3 272.46 CYL-4 421.93

EXT GAS TEMP DEG. F EXT-1 1050.9 EXT-2 -454.00 EXT-3 343.51 EXT-4 705.41 SEXT-1 720.74 SEXT-2 714.46

ENGINE OIL EOILT 159.12 SOILT 440.48 OILP 45.985 MANIFOLD PRESSURE = 11.393

DYNO COND. TORQUE 5.5590 RPM 607.74 CYL. BACK PRESSURE = 28.842

INDUCTION AIR IA IPT1 59.500 IA IPT2 60.213 TAIRT1 151.16 TAIRT2 55.157

ORIFICE AIR TEMP 84.999 DELTAP 4.8945 ORFP 53.401 FLOW 3027.5

CEIL TEMP. = 77.643 HEATED TEMP = 85.566 COOLER TEMP = 45.027

NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDEII REC 04/01/76 20:28:19.153 FAC SEX15 PGM C003 RDG 2763

LEANOUT I & T 25 BTDC 59 DEG 30% HUM MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.920 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR TEMP 61.079 PRESS 28.918 CFM 17.906 DRY FLOW 79.545 VAPOR FLOW 0.27077 PRESS TOTAL 14.210

COMB. FUEL TEMP 74.968 PRESS 5.7336 DENSITY 44.780 TURBO FLOW 8.1329 FLOW TRON 6.8377 FPIP 6.1287

COOLING AIR TEMP 66.462 UDEL-HOOD 0.026292 DEL-HOOD 0.67031 FLOW 2357.0 REL-HUM 29.041 DEW-POINT 29.414

REL-HUM 1 29.041 2 13.655 HUMIDITY 23.828 % H2O VAPOR CORRECTED HP 0.54716 1.3758

ENG. COND. F/A DRY 0.085959 F/A WET 0.085668 EQU. RATIO 1.2830 RPM-1 1204.3 RPM-2 1204.8 TORQUE 5.9589 BHP 1.3664

WET CORRECTION FACTOR = 0.85844 EXHAUST MOLE WT. = 27.217 EXHAUST DENSITY = 0.070471 EXHAUST FLOW RATE = 1229.6

MEASURED CONC. PART PER MILLION WET PER CENT  
HC PPM 4006.0 NOX PPM 45.935 CO DRY 8.3447 CO2 DRY 9.6420 O2 DRY 0.19706  
CORRECTED CONC. TO WET BASIS 7.1634 8.2770 0.16916

EMISSION RATE HC 0.17684 NOX 0.0067215 CO 6.3949  
EMISSION MASS/MODE 0.032421 0.0012323 1.1724  
EMISSION MASS/RATED HP 0.00020263 7.7017E-06 0.0073275  
MODE EMIS./STD. CYCLE % 10.665 0.51345 17.446

CAL. FUEL AIR RATIO = 0.087257 MEAS. FUEL AIR RATIO = 0.085959 DIFF MEAS. & CAL. F/A PERCENT = 1.5098

CYL TEMP DEG.F CYL-1 286.75 CYL-2 305.30 CYL-3 287.68 CYL-4 -269.95

EXT GAS TEMP DEG.F EXT-1 992.82 EXT-2 -454.00 EXT-3 146.08 EXT-4 689.21 SEXT-1 643.33 SEXT-2 635.36

ENGINE OIL FOILT 155.97 SOILT 266.71 OILP 56.906 MANIFOLD PRESSURE = 7.7506

DYND COND. TORQUE 3.5716 RPM 1197.4 CYL. BACK PRESSURE = 28.958

INDUCTION AIR TAIRT1 60.456 TAIRT2 61.079 TAIRT1 51.280 TAIRT2 55.593

ORIFICE AIR TEMP 85.779 DELTAP 3.9210 ORFP 53.469 FLOW 2719.6

CFL TEMP. = 78.625 HEATER TEMP = 86.352 COOLER TEMP = 47.106

NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDEII REC 04/01/76 20:30:46.197 FAC SEX15 PGM C003 RDG 2764

LEANOUT I & T 25 BTDC 59 DEG 30% HUM MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.920 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	61.367	28.917	17.361	77.096	0.26320	14.202

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	75.128	5.7369	44.776	7.9518	6.6517	6.1272

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	67.241	0.016605	0.62464	2308.6	28.813	29.459

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	28.813	43.854	23.897	0.54876	1.2221

ENG. CON.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.086277	0.085984	1.2877	1196.6	1197.6	5.3255	1.2134

WET CORRECTION FACTOR = 0.86014 EXHAUST MOLE. WT. = 27.193 EXHAUST DENSITY = 0.070408 EXHAUST FLOW RATE = 1193.2

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	4120.4	46.181	8.2552	9.7004	0.19484
CORRECTED CONC. TO WET BASIS			7.1006	8.3437	0.16759

	HC	NOX	CO
EMISSION RATE	0.17650	0.0065572	6.1510
EMISSION MASS/MODE	0.0088251	0.00032786	0.30755
EMISSION MASS/RATED HP	5.5157E-05	2.0491E-06	0.0019222
MODE EMIS./STD. CYCLE %	2.9030	0.13661	4.5766

CAL. FUEL AIR RATIO = 0.087074 MEAS. FUEL AIR RATIO = 0.086277 DIFF MEAS. & CAL. F/A PERCENT = 0.92339

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	315.20	333.12	316.92	-151.36

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	847.41	-454.00	196.31	722.27	669.42	663.97

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	158.95	408.17	56.298	7.7628

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	-1.2025	1190.3	28.958

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	60.727	61.367	58.272	55.486

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	85.998	4.8812	53.420	3021.2

CELL TEMP. = 78.845 HEATER TEMP = 86.144 COOLER TEMP = 47.423

NASA-LEWIS		PRELIMINARY DATA		04/01/76		CADDEII		REC 04/01/76 20:33:32.517		FAC SEX15		PGM C003		RDG 2765		
LEANOUT 1 & T 25 BTDC 59 DEG 30% HUM								MODE = 7.0000		NO. SCANS = 5						
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 28.920				RATED HP. = 160.00		HC RATIO = 2.1250				
COMB. AIR		TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL									
		58.840	28.920	10.630	47.247	0.16288	14.204									
COMB. FUEL		TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP									
		72.765	5.7846	44.838	3.9800	4.1014	6.1395									
COOLING AIR		TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT									
		64.300	0.010517	0.66422	2278.0	31.839	29.649									
REL-HUM		1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP										
		31.839	76.690	24.132	0.55416	0.68336										
ENG. COND.		F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP								
		0.086808	0.086510	1.2956	602.88	601.50	5.9256	0.68020								
WET CORRECTION FACTOR = 0.86228				EXHAUST MOLE. WT. = 27.153				EXHAUST DENSITY = 0.070305				EXHAUST FLOW RATE = 732.58				
MEASURED CONC.		PART PER MILLION WET		PER CENT												
		HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY										
		23358.	12.427	8.1484	8.0915	2.4847										
CORRECTED CONC. TO WET BASIS				7.0262	6.9771	2.1425										
EMISSION RATE		HC	NOX	CO												
		0.61440	0.0010835	3.7374												
EMISSION MASS/MODE		0.010240	1.8059E-05	0.062290												
EMISSION MASS/RATED HP		6.4000E-05	1.1287E-07	0.00038931												
MODE FMIS./STD. CYCLE %		3.3684	0.0075244	0.92694												
CAL. FUEL AIR RATIO = 0.090958				MEAS. FUEL AIR RATIO = 0.086808				DIFF MEAS. & CAL. F/A PERCENT = 4.7809								
CYL TEMP DEG.F		CYL-1	CYL-2	CYL-3	CYL-4											
		232.87	299.15	277.11	-208.47											
EXT GAS TEMP DEG.F		EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2									
		1029.3	-454.00	155.03	639.46	652.84	646.34									
ENGINE OIL		EOILT	SOILT	OILP	MANIFOLD PRESSURE = 10.825											
		158.69	401.58	45.913												
DYNO COND.		TORQUE	RPM	CYL. BACK PRESSURE = 29.071												
		1.4833	598.68													
INDUCTION AIR		IAIRT1	IAIRT2	TAIRT1	TAIRT2											
		58.081	58.840	90.697	55.087											
ORIFICE AIR		TEMP	DELTAP	ORFP	FLOW											
		83.093	4.8924	53.373	3032.2											
CELL TEMP. = 75.828				HEATER TEMP = 84.710				COOLER TEMP = 46.302								

NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDEII REC 04/01/76 20:37:26.343 FAC SEX15 PGM C003 RDG 2766

LEANOUT I & T 25 RTDC 59 DEG 30% HUM MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.920 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.419	28.919	12.125	53.867	0.18537	14.200

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	73.689	5.7468	44.814	3.9761	5.1425	6.1275

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	64.462	0.015498	0.60776	2303.0	31.123	29.609

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	31.123	0.39204	24.088	0.55315	0.69096

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.095466	0.095139	1.4249	595.86	597.36	6.0589	0.68741

WET CORRECTION FACTOR = 0.88061 EXHAUST MOLE. WT. = 26.530 EXHAUST DENSITY = 0.068693 EXHAUST FLOW RATE = 861.74

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM NOX PPM CO DRY CO2 DRY O2 DRY	
	32975. 6.0366 9.55530 6.5187 3.4532	
CORRECTED CONC. TO WET BASIS		8.4145 5.7404 3.0410

EMISSION RATE	HC	NOX	CO
	1.0201	0.00061903	5.2643
EMISSION MASS/MODE	0.017002	1.0317E-05	0.087738
EMISSION MASS/RATED HP	0.00010626	6.4483E-08	0.00054836
MODE EMIS./STD. CYCLE %	5.5928	0.0042988	1.3056

CAL. FUEL AIR RATIO = 0.097803 MEAS. FUEL AIR RATIO = 0.095466 DIFF MEAS. & CAL. F/A PERCENT = 2.4477

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	270.61	288.12	265.60	-211.04

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1655.8	-454.00	73.441	641.49	619.71	613.45

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 11.808
	155.30	328.52	46.201	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 28.962
	4.4860	587.88	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	58.633	59.419	106.60	55.173

ORIFICE AIR	TFMP	DELTAP	ORFP	FLOW
	83.497	4.8845	53.353	3029.0

CELL TEMP. = 76.041 HEATER TEMP = 84.716 COOLER TEMP = 45.850



NASA-LEWIS		PRELIMINARY DATA		04/01/76		CADDEII		REC 04/01/76 20:40:11.834		FAC SEX15		PGM C003		RDG 2767	
LEANOUT I & T 25' BTDC 59 DEG 30% HUM						MODE = 6.0000		NO. SCANS = 5							
ENGINE TIMING = 25.000			DEG.		BAROMETRIC PRESSURE = 28.920			RATED HP. = 160.00			HC RATIO = 2.1250				
COMP. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		59.400		28.916		19.562		86.911		0.29982		14.206			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		73.698		5.7000		44.814		9.8148		8.3768		6.1212			
CCGLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		65.135		0.022694		0.58968		2339.0		31.232		29.664			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		31.232		10.297		24.148		0.55453		1.5089					
ENG. COND.		F/A DRY		F/A WET		EQ. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.096384		0.096052		1.4386		1207.9		1210.0		6.5256		1.5008	
WET CORRECTION F/A DRY = 0.86532						EXHAUST MOLE. WT. = 26.467				EXHAUST DENSITY = 0.068530				EXHAUST FLOW RATE = 1394.8	
MEASURED CONC.		PART PER MILLION WET				PER CENT									
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		8538.8		22.330		11.163		7.9457		0.31083					
CORRECTED CONC. TO WET BASIS						9.6597		6.8755		0.26897					
		HC		NOX		CO									
EMISSION RATE		0.42758		0.0037065		9.7819									
EMISSION MASS/MODE		0.021379		0.00018532		0.48909									
EMISSION MASS/RATED HP		0.00013362		1.1583E-06		0.0030568									
MODE EMIS./STD. CYCLE %		7.0325		0.077218		7.2782									
CAL. FUEL AIR RATIO = 0.097686						MEAS. FUEL AIR RATIO = 0.096384				DIFF MEAS. & CAL. F/A PERCENT = 1.3510					
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		293.29		311.42		293.00		-290.20							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		1588.2		-454.00		4.6378		627.38		630.10		624.63			
ENGINE OIL		EOILT		SOILT		OILP		MANIFOLD PRESSURE = 8.1741							
		156.40		333.96		56.854									
DYNO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 28.958									
		11.118		1194.2											
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
		58.822		59.400		117.59		55.356							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		83.910		4.8660		53.524		3022.9							
CELL TEMP. = 76.289						HEATER TEMP = 84.266				COOLER TEMP = 47.161					



NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDEII REC 04/01/76 20:42:53.730 FAC SEX15 PGM C003 RDG 2768

LEANOUT 1 & T 25 BTDC 59 DEG 30% HUM MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.920 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TFMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	60.114	28.914	11.741	52.185	0.18084	14.205

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON.	FPIP
	73.982	5.7459	44.806	3.9754	5.1635	6.1401

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	65.440	0.011624	0.65508	2283.6	30.583	29.749

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	30.583	31.235	24.258	0.55704	0.60127

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.098946	0.098604	1.4768	604.62	607.74	5.1922	0.59773

WET CORRECTION FACTOR = 0.88915 EXHAUST MOLE. WT. = 26.295 EXHAUST DENSITY = 0.068084 EXHAUST FLOW RATE = 844.97

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY
	32398.	5.9806	9.75860	6.5897
CORRECTED CONC. TO WET BASIS			8.6858	5.8592

	HC	NOX	CO
EMISSION RATE	0.98278	0.00060136	5.3283
EMISSION MASS/MODE	0.016380	1.0023E-05	0.088805
EMISSION MASS/RATED HP	0.00010237	6.2641E-08	0.00055503
MODE EMIS./STD. CYCLE %	5.3881	0.0041761	1.3215

CAL.FUPL AIR RATIO = 0.098383 MEAS. FUEL AIR RATIO = 0.098946 DIFF MEAS.& CAL. F/A PERCENT = -0.56872

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	279.95	298.00	277.24	-245.56

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1630.2	-454.00	110.71	610.69	635.36	630.41

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 11.614
	156.80	292.65	46.205	

DYNO COND.	TORQUE	RPM	CYL.BACK PRESSURE = 28.813
	9.5914	597.30	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	59.355	60.114	110.24	55.083

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	84.121	4.8608	53.223	3020.9

CELL TEMP. = 76.856 HEATER TEMP = 83.919 COOLER TEMP = 66.400

NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDEII REC 04/01/76 20:46:47.069 FAC SEX15 PGM C003 RDG 2769

LEANOUT I & T 25 BTDC 59 DEG 30% HUM MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.920 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR TEMP 60.655 PRESS 28.922 CFM 13.723 DRY FLOW 60.973 VAPOR FLOW 0.20998 PRESS TOTAL 14.201

COMB. FUEL TEMP 74.764 PRESS 5.7111 DENSITY 44.785 TURBO FLOW 3.9718 FLOW TRON 6.4656 FPIP 6.1359

COOLING AIR TEMP 65.664 UDEL-HOOD 0.021587 DEL-HOOD 0.65754 FLOW 2333.5 REL-HUM 29.806 DEW-POINT 29.624

REL-HUM 1 29.806 2 53.013 HUMIDITY 24.106 % H2O VAPOR CORRECTED HP 0.55356 0.62886

ENG. COND. F/A DRY 0.10604 F/A WET 0.10568 EQU. RATIO 1.5827 RPM-1 618.12 RPM-2 615.78 TORQUE 5.3089 BHP 0.62481

WET CORRECTION FACTOR = 0.89632 EXHAUST MOLE. WT. = 25.843 EXHAUST DENSITY = 0.066914 EXHAUST FLOW RATE = 1011.0

MEASURED CONC. PART PER MILLION WET HC PPM 37434. NOX PPM 5.2245 CO DRY 10.7840 PER CENT CO2 DRY 5.8782 C2 DRY 3.3255  
CORRECTED CONC. TO WET BASIS CO DRY 9.6657 PER CENT CO2 DRY 5.2688 C2 DRY 2.9808

EMISSION RATE HC 1.3587 NOX 0.00062854 CO 7.0944  
EMISSION MASS/MODE 0.022644 1.0476E-05 0.11824  
EMISSION MASS/RATED HP 0.00014153 6.5473E-08 0.00073900  
MODE EMIS./STD. CYCLE % 7.4488 0.0043649 1.7595

CAL. FUEL AIR RATIO = 0.10468 MEAS. FUEL AIR RATIO = 0.10604 DIFF MEAS. & CAL. F/A PERCENT = -1.2865

CYL TEMP DEG.F CYL-1 263.83 CYL-2 286.41 CYL-3 263.81 CYL-4 -162.08

EXT GAS TEMP DEG.F EXT-1 943.25 EXT-2 -454.00 EXT-3 50.579 EXT-4 631.11 SEXT-1 600.14 SEXT-2 595.42

ENGINE OIL EOILT 152.46 SOILT 261.58 OILP 46.721 MANIFOLD PRESSURE = 12.523

DYMO COND. TORQUE 8.9433 RPM 608.94 CYL. BACK PRESSURE = 29.209

INDUCTION AIR IAIRT1 59.978 IAIRT2 60.655 TAIRT1 117.76 TAIRT2 55.157

ORIFICE AIR TEMP 84.718 DELTAP 4.7851 ORFP 53.457 FLOW 2998.3

CELL TEMP. = 77.263 HEATER TEMP = 84.370 COOLER TEMP = 46.031

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NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDE11 REC 04/01/76 20:49:14.883 FAC SEX15 PGM C003 RDG 2770  
 LEANOUT I & T 25 BTDC 59 DEG 30% HUM MODE = 2.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.920 RATED HP. = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	60.889	28.921	20.751	92.130	0.31777	14.209
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	74.551	5.6721	44.791	11.028	9.6310	6.1161
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT
	66.552	0.013838	0.68553	2294.7	29.620	29.664
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP	
	29.620	31.813	24.144	0.55442	1.2363	
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE
	0.10454	0.10418	1.5502	1205.3	1206.7	5.3505
						BHP
						1.2280

 WET CORRECTION FACTOR = 0.87635 EXHAUST MOLE WT. = 25.936 EXHAUST DENSITY = 0.067154 EXHAUST FLOW RATE = 1520.1  

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY
	13273.	12.512	12.2540	7.2233
CORRECTED CONC. TO WET BASIS			10.739	6.3301
				0.41874
				0.36696

EMISSION RATE	HC	NOX	CO
	0.72433	0.0022633	11.851
EMISSION MASS/MODE	0.13279	0.00041494	2.1726
EMISSION MASS/RATED HP	0.00082996	2.5934E-06	0.013579
MODE EMIS./STD. CYCLE %	43.682	0.17289	32.331

 CAL. FUEL AIR RATIO = 0.10373 MEAS. FUEL AIR RATIO = 0.10454 DIFF MEAS. & CAL. F/A PERCENT = -0.76746  

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	302.15	322.79	303.50	-200.32
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4
	677.29	-454.00	300.82	695.56
				SEXT-1
				650.86
				SEXT-2
				647.93
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 8.6766
	154.94	272.38	56.774	
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.083	
	6.3294	1213.3		
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	60.312	60.889	82.203	55.800
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	84.981	4.8483	53.442	3015.1
CELL TEMP. = 77.794	HEATER TEMP = 85.125	COOLER TEMP = 48.172		

NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDEII REC 04/01/76 20:51:51.609 FAC SEX15 PGM C003 RDG 2771

LFANOUT I & T 25 BTDC 59 DEG 30% HUM MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.920 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	61.079	28.912	20.958	93.135	0.31958	14.208

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	75.092	5.6751	44.777	10.839	9.4269	6.1191

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	66.963	0.0088562	0.62021	2269.6	29.259	29.564

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	29.269	8.6869	24.020	0.55157	1.5427

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10122	0.10087	1.5107	1202.3	1203.3	6.6923	1.5320

WET CORRECTION FACTOR = 0.86543 EXHAUST MILE. WT. = 26.146 EXHAUST DENSITY = 0.067699 EXHAUST FLOW RATE = 1519.7

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	13220.	12.198	12.2780	7.2265	0.40652
CORRECTED CONC. TO WET BASIS			10.626	6.2540	0.35182

	HC	NOX	CO
EMISSION RATE	0.72126	0.0022060	11.724
EMISSION MASS/MODE	0.036063	0.00011030	0.58618
EMISSION MASS/RATED HP	0.00022539	6.8936E-07	0.0036636
MODE EMIS./STD. CYCLE %	11.863	0.045957	8.7229

CAL. FUEL AIR RATIO = 0.10389 MEAS. FUEL AIR RATIO = 0.10122 DIFF MEAS. & CAL. F/A PERCENT = 2.6375

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	301.84	320.42	302.54	-143.78

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1532.8	-454.00	254.41	744.21	637.99	633.90

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 8.7231
	155.93	296.81	56.710	

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 28.955
	5.2421	1202.6	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	60.538	61.079	87.813	55.306

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	85.244	4.8945	53.247	3026.8

GELL TEMP. = 78.139 HEATER TEMP = 83.781 COOLER TEMP = 47.287

NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDEII REC 04/01/76 20:57:39.279 FAC SEX15 PGM C003 RDG 2773

LEANOUT I & T 25 RTDC 59 DEG 30% HUM MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.920 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	58.840	28.915	14.578	65.190	0.22619	14.206

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	72.435	5.6958	44.847	8.5527	7.2577	6.1152

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	64.138	0.0063654	0.59641	2257.1	32.047	29.774

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	32.047	18.630	24.288	0.55773	0.50936

FNG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.11133	0.11095	1.6617	606.18	610.98	4.3921	0.50693

WET CORRECTION FACTOR = 0.90748 EXHAUST MOLE. WT. = 25.530 EXHAUST DENSITY = 0.066103 EXHAUST FLOW RATE = 1099.4

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	43080.	5.4535	11.0990	5.3543	3.7484
CORRECTED CONC. TO WET BASIS			10.072	4.8589	3.4016

	HC	NOX	CO
EMISSION RATE	1.7003	0.00071348	8.0392
EMISSION MASS/MODE	0.028339	1.1891E-05	0.13399
EMISSION MASS/RATED HP	0.00017712	7.4321E-08	0.00083742
MODE EMIS./STD. CYCLE %	9.3219	0.3049547	1.9939

CAL. FUEL AIR RATIO = 0.10788 MEAS. FUEL AIR RATIO = 0.11133 DIFF MEAS. & CAL. F/A PERCENT = 3.1010

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	264.97	291.42	271.21	-21.962

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1249.8	-454.00	317.56	706.43	627.99	623.46

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	154.15	332.56	46.405	13.235

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	6.2718	587.52	28.549

INDUCTION AIR	IAIRT1	IAIPT2	TAIRT1	TAIRT2
	58.189	58.840	-72.986	55.524

GRIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	82.821	4.8697	53.374	3026.9

CELL TEMP. = 75.261 HEATER TEMP = 83.691 COOLER TEMP = 48.082

NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDEIT REC 04/01/76 21:00:10.518 FAC SEX15 PGM C003 BDG 2774

LEAKOUT I & T 25 BTDC 59 DEG 30% HUM MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.920 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	58.967	28.920	22.702	100.84	0.34851	14.210

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	72.542	5.6514	44.844	12.364	10.900	6.1131

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	64.821	0.019650	0.65758	2323.8	31.786	29.704

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	31.786	6.4806	24.192	0.55554	1.2286

ENG. CON.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10809	0.10772	1.6133	1203.7	1205.5	5.3255	1.2205

WET CORRECTION FACTOR = 0.87788 EXHAUST NOLE. WT. = 25.719 EXHAUST DENSITY = 0.066593 EXHAUST FLOW RATE = 1683.2

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	17069.	4.6849	12.7780	6.7576	0.50589
CORRECTED CONC. TO WET BASIS			11.217	5.9324	0.44411

	HC	NOX	CO
EMISSION RATE	1.0315	0.0017396	13.707
EMISSION MASS/MODE	0.18910	0.00031892	2.5130
EMISSION MASS/RATED HP	0.0011819	1.9932E-06	0.015706
MODE EMIS./STD. CYCLE %	62.204	0.13288	37.396

CAL. FUEL AIR RATIO = 0.10796 MEAS. FUEL AIR RATIO = 0.10809 DIFF MEAS. & CAL. F/A PERCENT = -0.12572

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	294.42	317.01	299.26	150.95

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1545.6	-454.00	469.37	735.69	666.89	669.71

ENGINE OIL	OIL T	SOIL T	OIL P	MANIFOLD PRESSURE
	155.83	223.86	56.730	9.2229

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE
	11.658	1204.6	29.023

INDUCTION AIR	TAIRT1	TAIRT2	TATRT1	TAIRT2
	58.407	58.967	59.568	55.604

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	83.234	4.8838	53.437	3029.5

CELL TEMP. = 75.739 HEATER TEMP = 83.392 COOLER TEMP = 48.515

NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDEII REC 04/01/76 21:02:27.173 FAC SEX15 PGM C003 RDG 2775

LEANOUT I & T 25 BTDC 59 DEG 30% HUM MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.920 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.337	28.919	22.084	98.053	0.33732	14.205

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	72.827	5.6586	44.837	11.832	10.393	6.1170

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	65.503	0.011347	0.69605	2282.2	31.213	29.609

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	31.213	1.8162	24.081	0.55298	1.2621

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10599	0.10563	1.5820	1200.4	1200.7	5.4922	1.2553

WET CORRECTION F TOR = 0.87288 EXHAUST MOLE. WT. = 25.846 EXHAUST DENSITY = 0.066922 EXHAUST FLOW RATE = 1625.5

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY
	16601.	8.8499	12.7750	6.7667
CORRECTED CONC. TO WET BASIS			CO DRY	O2 DRY
			11.151	5.9065

EMISSION RATE	HC	NOX	CO
	0.96882	0.0017119	13.159
EMISSION MASS/MODE	0.048441	8.5596E-05	0.65797
EMISSION MASS/RATED HP	0.00030276	5.3497E-07	0.0041123
MODE EMIS./STD. CYCLE %	15.935	0.035665	9.7913

CAL.FUEL AIR RATIO = 0.10751 MEAS. FUEL AIR RATIO = 0.10599 DIFF MEAS.& CAL. F/A PERCENT = 1.4276

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	308.10	328.11	312.47	-6.6423

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1551.5	-454.00	565.23	754.97	681.61	678.61

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 9.0961
	157.44	325.33	56.514	

DYNO COND.	TORQUE	RPM	CYL.BACK PRESSURE = 29.031
	4.5797	1206.3	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	58.877	59.337	-84.893	55.657

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	83.436	4.8383	53.386	3016.6

CFLT TEMP. = 76.324 HEATER TEMP = 83.240 COOLER TEMP = 48.262



NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDEII REC 04/01/76 21:04:43.173 FAC SEX15 PGM C003 R0G 2776

LEANOUT I & T 25 BTDC 59 DEG 30% HUM MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.920 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	60.069	28.913	14.320	63.603	0.22202	14.206

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	73.245	5.7009	44.826	8.3956	7.1197	6.1275

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	65.655	0.0099633	0.67750	2275.2	30.856	29.889

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	30.856	53.897	24.435	0.56111	0.59828

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.11194	0.11155	1.6707	588.36	589.20	5.3089	0.59473

WET CORRECTION FACTOR = 0.91164 EXHAUST MOLE. WT. = 25.495 EXHAUST DENSITY = 0.066013 EXHAUST FLOW RATE = 1074.7

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM NOX PPM CO DRY CO2 DRY O2 DRY	
	43868. 5.3355 11.0230 5.2266 3.9306	
CORRECTED CONC. TO WET BASIS		10.049 4.7648 3.5833

	HC	NOX	CO
EMISSION RATE	1.6925	0.00068236	7.8405
EMISSION MASS/MODE	0.028709	1.1373E-05	0.13068
EMISSION MASS/RATED HP	0.00017631	7.1079E-08	0.00081672
MODE EMIS./STD. CYCLE %	9.2792	0.0047386	1.9446

CAL. FUEL AIR RATIO = 0.10763 MEAS. FUEL AIR RATIO = 0.11194 DIFF MEAS. & CAL. F/A PERCENT = -3.8460

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	283.21	307.05	286.01	18.941

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1477.2	-454.00	457.07	732.75	656.62	652.36

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 13.443
	156.65	212.68	45.733	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 28.913
	1.0153	592.56	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	59.373	60.069	43.856	55.469

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	83.822	4.8116	53.495	3008.1

CELL TEMP. = 76.413 HEATER TEMP = 83.115 COOLER TEMP = 47.396



NASA-LEWIS PRELIMINARY DATA 04/01/76 CADDEIT REC 04/01/76 21:08:51.820 FAC SEX15 PGM C003 RDG 2777  
 LFANOUT I & T 25 BTDC 59 DEG 30% HUM MODE = 7.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.920 RATED HP = 160.00 HC RATIO = 2.1250  
 COMB. AIR TEMP 60.745 PRESS 28.921 CFM 13.422 DRY FLOW 59.661 VAPOR FLOW 0.20641 PRESS TOTAL 14.206  
 COMB. FUEL TEMP 73.814 PRESS 5.7189 DENSITY 44.811 TURBO FLOW 7.7053 FLOW TRON 6.4776 FPIP 6.1308  
 COOLING AIR TEMP 66.793 UNEL-HOOD 0.013838 DEL-HOOD 0.65204 FLOW 2294.7 REL-HUM 29.857 DEW-POINT 29.719  
 REL-HUM 1 29.857 2 25.613 HUMIDITY 24.217 % H2O VAPOR CORRECTED HP 0.55611 0.38664  
 ENG. COND. F/A DRY 0.10857 F/A WET 0.10820 EQU. RATIO 1.6205 RPM-1 593.28 RPM-2 595.62 TORQUE 3.4003 BHP 0.38411  
 WET CORRECTION FACTOR = 0.90591 EXHAUST MOLE. WT. = 25.691 EXHAUST DENSITY = 0.066519 EXHAUST FLOW RATE = 997.39  
 MEASURED CONC. PART PER MILLION WET PER CENT  
 HC PPM 39929. NOX PPM 5.0465 CO DRY 10.733 CO2 DRY 5.6538 O2 DRY 3.6491  
 CORRECTED CONC. TO WET BASIS 9.7227 5.1218 3.3057  
 EMISSION RATE HC 1.4297 NOX 0.00059896 CO 7.0402  
 EMISSION MASS/MODE 0.023829 9.9827E-06 0.11734  
 EMISSION MASS/RATED HP 0.00014893 6.2392E-08 0.00073336  
 MODE EMIS./STD. CYCLE % 7.8385 0.0041595 1.7461  
 CAL. FUEL AIR RATIO = 0.10492 MEAS. FUEL AIR RATIO = 0.10857 DIFF MEAS. & CAL. F/A PERCENT = -3.3677  
 CYL TEMP DEG.F CYL-1 291.48 CYL-2 317.24 CYL-3 296.33 CYL-4 2.2663  
 EXT GAS TEMP DEG.F EXT-1 1420.1 EXT-2 -454.00 EXT-3 504.61 EXT-4 693.24 SEXT-1 680.28 SEXT-2 676.46  
 ENGINE OIL EOILT 161.67 SOILT 288.87 OILP 45.429 MANIFOLD PRESSURE = 12.743  
 DYNO COND. TORQUE 4.8029 RPM 586.08 CYL. BACK PRESSURE = 29.160  
 INDUCTION AIR IAIRT1 60.051 IAIRT2 60.745 TAIRT1 116.26 TAIRT2 55.117  
 ORIFICE AIR TEMP 84.279 DELTAP 3.9208 ORFP 53.312 FLOW 2723.3  
 CELL TEMP. = 77.298 HEATER TEMP = 82.907 COOLER TEMP = 45.805

NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDEIT REC 04/01/76 10:29:08.166 FAC SEX15 PGM C003 RDG 2778

LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 30 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.040 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR TEMP 58.371 PRESS 29.046 CFM 210.83 DRY FLOW 471.60 VAPOR FLOW 3.4294 PRESS TOTAL 14.765

COMB. FUEL TEMP 63.069 PRESS 5.3405 DENSITY 45.097 TURBO FLOW 80.201 FLOW TRON 78.818 FPIP 5.9199

COOLING AIR TEMP 59.328 WDEL-HOOD 3.2605 DEL-HOOD 3.8181 FLOW 10430. REL-HUM 34.455 DEW-POINT 30.844

REL-HUM 1 34.455 2 9.8470 HUMIDITY 24.707 % H2O VAPOR CORRECTED HP 0.56736 150.31

ENG. COND. F/A DRY 0.081121 F/A WET 0.080836 EQU. RATIO 1.2108 RPM-1 2701.1 RPM-2 2702.8 TORQUE 295.74 RHP 152.10

WET CORRECTION FACTOR = 0.84812 EXHAUST MOLE. WT. = 27.591 EXHAUST DENSITY = 0.071440 EXHAUST FLOW RATE = 14751.

MEASURED CONC. HC PPM 1468.5 NOX PPM 188.32 CO DRY 7.5566 CO2 DRY 10.5770 O2 DRY 0.091029  
CORRECTED CONC. TO WET BASIS HC 6.4089 NOX 8.9706 CO 0.077204

EMISSION RATE HC 0.77771 NOX 0.33060 CO 68.636  
EMISSION MASS/MODE 0.0038885 0.0015530 0.34318  
EMISSION MASS/RATED HP 2.4303E-05 1.0331E-05 0.0021449  
MODE EMIS./STD. CYCLE % 1.2791 0.58874 5.1069

CAL. FUEL AIR RATIO = 0.083578 MEAS. FUEL AIR RATIO = 0.081121 DIFF MEAS. & CAL. F/A PERCENT = 3.0278

CYL TEMP DEG. F CYL-1 407.80 CYL-2 424.43 CYL-3 400.16 CYL-4 341.85

EXT GAS TEMP DEG. F EXT-1 439.38 EXT-2 -454.00 EXT-3 678.95 EXT-4 1090.8 SEXT-1 1399.6 SEXT-2 1399.3

ENGINE OIL EOILT 151.98 SOILT 154.06 OILP 74.811 MANIFOLD PRESSURE = 28.104

DYND COND. TORQUE 300.66 RPM 2620.4 CYL. BACK PRESSURE = 29.191

INDUCTION AIR IAIRT1 58.081 IAIRT2 58.371 TAIRT1 1.6166 TAIRT2 56.300

ORIFICE AIR TEMP 80.646 DELTAP 4.9088 ORFP 54.234 FLOW 3043.5

CELL TEMP. = 74.551 HEATER TEMP = 81.234 COOLER TEMP = 49.634

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NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDEII REC 04/31/75 10:32:11.828 FAC SFX15 PGM C003 RDG 2779

LEANOUT 25 RTDC TO CL APP 50 DEG HUM = 30 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.060 RATED HP. = 150.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.238	29.017	170.16	772.71	2.7530	14.567

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	63.213	5.4005	45.093	64.605	62.430	6.0414

COOLING AIR	TEMP	WHEEL-HOOD	DFL-HOOD	FLOW	REL-HUM	DEW-POINT
	60.619	3.0197	3.6349	9994.8	33.262	30.764

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	33.262	24.630	24.940	0.57270 121.12

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	RHP
	0.080744	0.080507	1.2059	2430.7	2432.3	259.92	120.29

WET CORRECTION FACTOR = 0.85093 EXHAUST MOLE. WT. = 27.517 EXHAUST DENSITY = 0.071508 EXHAUST FLOW RATE = 11717.

MEASURED CONC.	PART PER MILLION WFT		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1460.5	505.71	7.1015	10.7900	0.066197
CORRECTED CONC. TO WET BASIS			6.0428	9.1815	0.056320

	HC	NOX	CO
EMISSION RATE	0.61439	0.70516	51.406
EMISSION MASS/MODE	0.051199	0.058763	4.2938
EMISSION MASS/RATED HP	0.00032000	0.00036727	0.026774
MODE EMIS./STD. CYCLE %	15.842	24.485	63.747

CAL. FUEL AIR RATIO = 0.082610 MEAS. FUEL AIR RATIO = 0.080794 DIFF MEAS. & CAL. F/A PERCENT = 2.2482

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	368.43	393.08	398.59	325.37

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1210.4	-454.00	862.45	1147.2	1366.3	1367.1

ENGINE OIL	FOILT	SOILT	OILT	MANIFOLD PRESSURE = 26.309
	157.54	132.54	72.491	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.086
	238.15	2342.3	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	59.030	59.238	120.37	56.914

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	80.945	4.8183	54.190	3013.0

CELL TEMP. = 75.890 HEATER TEMP = 81.040 COOLER TEMP = 52.627

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NASA-LEWIS PRELIMINARY DATA 04/02/76 CANDEII REC 04/01/76 10:36:00.363 FAC SEX15 PGM C003 RDG 2780

LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 30 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.070 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	60.303	29.073	104.43	477.41	1.7139	14.397

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	65.709	5.4851	45.026	45.863	41.941	6.0309

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	61.187	3.0250	3.6947	10004.	31.891	30.684

PFL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	31.891	22.624	25.131	0.57709	65.770

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	PPM-1	PPM-2	TORQUE	RHP
	0.087852	0.087537	1.3112	2353.1	2354.6	145.53	65.203

WET CORRECTION FACTOR = 0.85941 EXHAUST MOLE. WT. = 27.075 EXHAUST DENSITY = 0.070103 EXHAUST FLOW RATE = 7432.8

MEASURED CONC.	PART PER MILLION WET	NOX PPM	CO DRY	PER CFMT	CO2 DRY	NO2 DRY
	2038.8	137.95	9.1330	9.66760	0.064186	0.055162
CORRECTED CONC. TO WET BASIS			7.8490	8.3084		

	HC	NOX	CO
EMISSION RATE	0.54403	0.12202	4.2355
EMISSION MASS/MODE	0.054403	0.012202	4.2355
EMISSION MASS/RATED HP	0.00034002	7.6263E-05	0.026472
MODE EMISS./STD. CYCLE	17.896	5.0842	63.028

CAL. FUEL AIR RATIO = 0.098027 MEAS. FUEL AIR RATIO = 0.097852 DIFF MEAS. & CAL. F/A PERCENT = 0.19981

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	319.27	330.93	332.91	444.94

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1226.6	-454.00	670.10	1038.4	1220.6	1221.5

ENGINE OIL	OILT	SOILT	OILP	MANIFOLD PRESSURE = 18.312
	165.40	253.45	71.487	

DYNO COND.	TORQUE	RPM	CYL. RACK PRESSURE = 29.143
	150.50	2311.9	

INDUCTION AIR	TAIPT1	TAIPT2	TAIRT1	TAIRT2
	59.997	60.303	157.48	57.177

CRUISE AIR	TEMP	DELTA P	ORFP	FLOW
	81.439	4.8940	54.252	3037.3

CELL TEMP. = 76.510 HEATER TEMP = 80.880 COOLER TEMP = 52.159

NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDEII REC 04/01/76 10:55:07.549 FAC SEX15 PGM C003 RDG 2781

LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 30 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.070 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	57.547	29.059	209.35	967.01	3.7721	14.760

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	53.042	5.3441	45.097	82.240	78.824	5.9793

COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	60.709	2.8727	3.5422	9719.0	39.185	32.914

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	39.185	10.575	27.306	0.62703	156.27

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	PPM-1	RPM-2	TORQUE	RHP
	0.081513	0.081196	1.2166	2699.5	2701.6	292.32	150.25

WET CORRECTION FACTOR = 0.84650 EXHAUST MOLE WT. = 27.560 EXHAUST DENSITY = 0.071360 EXHAUST FLOW RATE = 14708.

MEASURED CONC.	PART PER MILLION WET			PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1426.7	254.27	7.8154	10.4140	0.044384
CORRECTED CONC. TO WET BASIS			6.6158	8.8154	0.037571

	HC	NOX	CO
EMISSION RATE	0.75337	0.44504	70.646
EMISSION MASS/MODE	0.0037669	0.0022252	0.35323
EMISSION MASS/RATED HP	2.3543E-05	1.3908E-05	0.0022077
MODE EMIS./STD. CYCLE %	1.2391	0.92718	5.2564

CAL. FUEL AIR RATIO = 0.084393 MEAS. FUEL AIR RATIO = 0.081513 DIFF MEAS. & CAL. F/A PERCENT = 3.5334

CYL. TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	420.33	436.10	419.71	391.82

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1673.4	-454.00	721.13	978.13	1321.1	1320.8

ENGINE OIL	FOILT	SOILT	OTLP	MANIFOLD PRESSURE
	189.08	212.92	73.187	28.087

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	289.26	2602.9	29.278

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	57.203	57.547	150.44	54.636

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	80.954	4.8584	54.237	3020.0

CFL. TEMP. = 80.029 HEATER TEMP = 10.304 COOLER TEMP = 48.254

NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDEII REC 04/01/76 11:07:33.233 FAC SEX15 PGM C003 RDG 2782

LEANOUT 25 RTDC TO CL APP 59 DEG HUM = 30 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.080 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	57.529	29.090	158.69	769.41	2.9743	14.593

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	64.138	5.4092	45.068	61.914	61.548	6.0132

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	63.132	2.9278	3.5336	9823.2	38.422	32.409

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	39.422	0.22202	27.260	0.62140 119.82

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.079994	0.079686	1.1939	2430.6	2432.5	257.52	119.18

WET CORRECTION FACTOR = 0.84808 EXHAUST MOLE. WT. = 27.681 EXHAUST DENSITY = 0.071672 EXHAUST FLOW RATE = 11635.

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1614.4	710.75	7.0920	10.7670	0.12497
CORRECTED CONC. TO WET BASIS			6.0145	9.1310	0.10599

	HC	NOX	CO
EMISSION RATE	0.67433	0.98410	50.806
EMISSION MASS/MODE	0.056194	0.082008	4.2338
EMISSION MASS/RATED HP	0.00035121	0.00051255	0.026461
MODE EMIS./STD. CYCLE %	18.485	34.170	63.003

CAL. FUEL AIR RATIO = 0.082490 MEAS. FUEL AIR RATIO = 0.079994 DIFF MEAS. & CAL. F/A PERCENT = 3.1204

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	368.46	391.65	411.63	608.89

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1425.3	-454.00	911.42	875.61	1239.9	1239.9

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 26.420
	187.31	152.34	72.947	

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.163
	275.04	2386.5	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	57.230	57.520	172.83	55.344

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	70.957	2.8125	51.691	2324.6

CELL TEMP. = 80.945 HEATER TEMP = 80.151 COOLER TEMP = 50.951

ORIGINAL PAGE IS  
OF POOR QUALITY

NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDEII REC 04/01/76 11:13:54.784 FAC SEX15 PGM C003 RDG 2783  
 LEANOUT 25 BTDC TO CL APP 50 DEG. HUM=30% MODE = 5.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.080 RATED HP. = 160.00 HC RATIO= 2.1250  

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.217	29.083	104.58	470.29	1.6604	14.394
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	66.489	5.4887	45.005	45.957	41.464	6.0351
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	59.987	2.8072	3.5494	9593.4	33.784	30.359
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP	
	33.784	40.018	24.714	0.56752	65.338	
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE
	0.088168	0.087857	1.3159	2349.5	2350.4	145.20
						BHP
						64.956
WET CORRECTION FACTOR = 0.86001			EXHAUST MOLE. WT. = 27.051		EXHAUST DENSITY = 0.070042	
			EXHAUST FLOW RATE = 7330.0			
MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	O2 DRY	
	HC PPM	NOX PPM	9.3363	9.54570	0.14719	
	2140.9	171.00	8.0293	8.2094	0.12659	
CORRECTED CONC. TO WET BASIS						
EMISSION RATE	HC	NOX	CO			
	0.56337	0.14916	42.729			
EMISSION MASS/MODE	0.056337	0.014916	4.2729			
EMISSION MASS/RATED HP	0.00035211	9.3222E-05	0.026705			
MODE EMISS./STD. CYCLE %	18.532	6.2148	63.584			
CAL. FUEL AIR RATIO = 0.088307		MEAS. FUEL AIR RATIO = 0.088168		DIFF MEAS. & CAL. F/A PERCENT = 0.15758		
CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4		
	326.07	337.24	341.69	562.53		
EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1370.4	-454.00	766.49	806.87	1086.0	1084.7
ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.343		
	187.05	224.63	72.303			
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.277			
	139.25	2310.7				
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2		
	57.837	53.217	117.41	55.816		
ORFICE AIR	TEMP	DELTA P	ORFP	FLOW		
	80.549	4.9090	54.194	3043.8		
CELL TEMP. = 80.743	HEATER TEMP = 80.540		COOLER TEMP = 51.222			



NASA-LEWIS		PRELIMINARY DATA		04/02/76		CADDEII		REC 04/01/76 11:22:16.956		FAC SEX15		PGM C003		RDG 2784	
LEANOUT 25 RTDC TO CL APP 59 DEG. HUM=30%								MODE = 3.0000		NO. SCANS = 5					
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 29.090				RATED HP. = 160.00		HC RATIO= 2.1250			
COMB. AIR		TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL								
		59.229	29.087	208.69	964.30	3.2782	14.768								
COMB. FUEL		TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP								
		65.009	5.3528	45.045	66.051	79.781	6.0213								
COOLING AIR		TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT								
		62.376	2.8858	3.4794	9743.7	32.194	30.129								
REL-HUM		1	2	HUMIDITY	% H2O VAPOR CORRECTED HP										
		32.194	12.723	23.797	0.54645		156.21								
ENG. COND.		F/A DRY	F/A WFT	EQU. RATIO	RPM-1	RPM-2	TORQUE	RHP							
		0.082734	0.082454	1.2348	2699.2	2701.2	292.29	150.22							
WET CORRECTION FACTOR = 0.95305				EXHAUST MOLE. WT. = 27.454		EXHAUST DENSITY = 0.071112		EXHAUST FLOW RATE = 14728.							
MEASURED CONC.		PART PER MILLION WFT			PER CENT										
		HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY									
		1464.2	297.51	7.7480	10.4740	0.074047									
CORRECTED CONC. TO WFT BASIS					CO										
		HC	NOX	CO											
EMISSION RATE		0.77421	0.52144	70.673											
EMISSION MASS/MODE		0.0038711	0.0026072	0.35337											
EMISSION MASS/RATED HP		2.4194E-05	1.6295E-05	0.0022085											
MODE EMIS./STD. CYCLE %		1.2734	1.0863	5.2584											
CAL. FUEL AIR RATIO = 0.084099				MEAS. FUEL AIR RATIO = 0.082734		DIFF MEAS. & CAL. F/A PERCENT = 1.6492									
CYL TEMP DEG.F		CYL-1	CYL-2	CYL-3	CYL-4										
		428.78	439.78	425.13	292.69										
EXT GAS TEMP DEG.F		EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2								
		889.39	-454.00	900.82	860.38	1322.5	1322.1								
ENGINE OIL		FOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.131										
		188.89	217.12	73.007											
DYMO COND.		TORQUE	RPM	CYL. BACK PRESSURE = 29.255											
		295.06	2597.1												
INDUCTION AIR		IAIRT1	IAIRT2	TAIRT1	TAIRT2										
		58.904	59.229	157.06	55.161										
ORIFICE AIR		TEMP	DELTA P	ORFP	FLOW										
		83.119	4.8751	53.984	3027.5										
CELL TEMP. = 82.319				HEATER TEMP = 81.199				COOLER TEMP = 50.266							



NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDEII RFC 04/02/76 11:32:56.645 FAC SEX15 PGM C003 RDG 2785

LEANOUT 25 BTDC TO CL APP 59 DEG. HUM=30% MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.090 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	57.429	29.089	208.80	965.03	3.4061	14.768

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	63.985	5.3690	45.372	80.656	76.814	6.0381

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT
	63.826	2.7773	3.3374	9535.7	35.649	30.849

PFL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	35.649	1.5542	24.707	0.56736	156.75

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	PPM-1	PPM-2	TORQUE	BHP
	0.079597	0.079317	1.1880	2701.2	2703.7	293.65	151.03

WET CORRECTION FACTOR = 0.85034 EXHAUST MOLE. WT. = 27.713 EXHAUST DENSITY = 0.071755 EXHAUST FLOW RATE = 14566.

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM NOX PPM CO DRY	CO2 DRY O2 DRY
	1305.5 427.68 6.6848	10.9740 0.073267
CORRECTED CONC. TO WET BASIS		9.3319 0.062302

EMISSION RATE	HC	NOX	CO
	0.68273	0.74137	60.115
EMISSION MASS/MODE	0.0034136	0.0037069	0.30057
EMISSION MASS/RATED HP	2.1335E-05	2.3168E-05	0.0018786
MODE EMIS./STD. CYCLE %	1.1229	1.5445	4.4728

CAL. FUEL AIR RATIO = 0.081561 MEAS. FUEL AIR RATIO = 0.079597 DIFF MEAS. & CAL. F/A PERCENT = 2.4675

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	428.19	444.11	430.27	380.03

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	896.67	-376.31	979.86	1111.3	1332.2	1331.8

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.155
	188.94	228.59	73.299	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.233
	294.97	2620.5	

INDUCTION AIR	TAIRT1	TAIPT2	TAIRT1	TAIRT2
	57.059	57.429	125.36	54.940

ORIFICE AIR	TEMP	DELTAP	ORIF	FLOW
	91.483	4.8734	54.222	3031.6

CELL TEMP. = 80.972 HEATER TEMP = 91.790 COOLER TEMP = 48.254

NASA-LEWIS		PRELIMINARY DATA		04/02/76		CADDEII		REC 04/02/76 11:38:14.769		FAC SEX15		PGM C003		ROG 2786	
LEANOUT 25 BTDC TO CL APP 59 DEG. HUM=30%						MODE = 4.0000		NO. SCANS = 5							
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.090				RATED HP.= 160.00		HC RATIO= 2.1250					
COMP. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		58.714		29.093		158.63		769.36		2.7841		14.591			
COMP. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		66.516		5.4098		45.304		62.750		60.498		6.0177			
COOLING AIR		TEMP		INLET-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		61.682		2.9475		3.5062		9860.2		34.476		31.094			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		34.476		5.7366		25.331		0.58168		121.32					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.078634		0.078350		1.1736		2434.2		2436.2		260.15		120.57	
WET CORRECTION FACTOR = 0.85243				EXHAUST MOLE. WT. = 27.790				EXHAUST DENSITY = 0.071956				EXHAUST FLOW RATE = 11571.			
MEASURED CONC.		PART PER MILLION WET				PER CENT									
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		1465.3		868.99		6.1575		11.2230		0.15604					
CORRECTED CONC. TO WET BASIS						5.2489		9.5672		0.13301					
		HC		NOX		CO									
EMISSION RATE		0.60873		1.1966		44.095									
EMISSION MASS/MODE		0.050728		0.099717		3.6746									
EMISSION MASS/RATED HP		0.00031705		0.00062323		0.022966									
MODE EMIS./STD. CYCLE %		16.687		41.549		54.682									
CAL. FUEL AIR RATIO = 0.080158				MEAS. FUEL AIR RATIO = 0.078634				DIFF MEAS. & CAL. F/A PERCENT = 1.9379							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		379.79		397.04		414.91		667.54							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		1212.4		-454.00		1014.1		977.38		1259.7		1260.1			
ENGINE OIL		EOILT		SOILT		OILP		MANIFOLD PRESSURE = 26.400							
		187.46		171.74		73.147									
DYNO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.218									
		256.93		2376.4											
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
		58.389		58.714		158.11		55.295							
ORIFICE AIR		TEMP		DELTA P		ORFP		FLOW							
		82.961		4.8361		53.967		3017.3							
CFLT TEMP. = 82.310				HEATER TEMP = 81.998				COOLER TEMP = 52.078							

NASA-LFWIS PRELIMINARY DATA 04/02/76 CADDEII REC 04/02/76 11:42:58.865 FAC SEX15 PGM C003 RDG 2787

LEANOUT 25 BTDC TO CL APP 59 DEG. HUM=30% MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.090 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	60.150	29.092	104.61	470.63	1.6867	14.403

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	70.020	5.5079	44.911	44.340	39.562	6.0198

COOLING AIR	TEMP	INDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	62.259	2.8393	3.5425	9655.0	32.023	30.659

PFL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	32.023	0.31403	25.388	0.57610	65.492

ENG. COND.	F/A DRY	F/A WET	EQV. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.084062	0.083761	1.2547	2354.6	2356.0	144.86	64.947

WET CORRECTION FACTOR = 0.85427 EXHAUST MOLE. WT. = 27.362 EXHAUST DENSITY = 0.070846 EXHAUST FLOW RATE = 7225.3

MEASURED CONC.	PART PER MILLION WET			PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1934.9	245.65	8.1991	10.1420	0.13305
CORRECTED CONC. TO WET BASIS			7.0042	8.6642	0.11366

	HC	NOX	CO
EMISSION RATE	0.50188	0.21121	36.741
EMISSION MASS/MODE	0.050188	0.021121	3.6741
EMISSION MASS/RATED HP	0.00031368	0.00013201	0.022963
MODE EMIS./STD. CYCLE %	16.509	8.8006	54.674

CAL. FUEL AIR RATIO = 0.085364 MEAS. FUEL AIR RATIO = 0.084062 DIFF MEAS. & CAL. F/A PERCENT = 1.5495

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	331.58	339.30	343.37	550.98

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1400.4	-454.00	1044.2	861.67	1093.6	1092.7

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.444
	197.03	199.96	72.739	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.122
	154.65	2314.0	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	59.761	60.150	91.636	55.881

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	84.130	4.8625	53.696	3021.3

CELL TEMP. = 82.847 HEATER TEMP = 82.171 COOLER TEMP = 51.618

NASA-LEWIS		PRELIMINARY DATA		04/02/76		CANDEII		REC 04/02/76 11:51:22.849		FAC SEX15		DGB C093		RDG 2788	
EXHAUST 25 BTDC TO CL APP 59 DEG. HUM=30%								MODE = 3.0000		NO. SCANS = 5					
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 29.090				RATED HP. = 160.00		HC RATIO = 2.1250			
COMP. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		56.932		29.082		209.22		967.12		3.5982		14.773			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIR			
		64.542		5.3609		45.357		76.141		76.604		5.9448			
COOLING AIR		TEMP		DEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		60.105		3.1027		3.7736		10147.		38.259		31.869			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		38.259		6.6487		26.343		0.59805		155.99					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		RHP	
		0.079208		0.078914		1.1922		2701.4		2704.0		292.17		150.28	
WET CORRECTION FACTOR = 0.84749				EXHAUST MLE. WT. = 27.744				EXHAUST DENSITY = 0.071836				EXHAUST FLOW RATE = 14508.			
MEASURED CONC.		PART PER MILLION WET				PER CENT									
		HC PPM		NOX PPM		CO DRY		CO2 DRY		CO2 DRY					
		1341.9		440.32		6.7462		10.9970		0.069467					
CORRECTED CONC. TO WET BASIS						5.7173		9.3198		0.058873					
EMISSION RATE		HC		NOX		CO									
		0.70237		0.76394		60.515									
EMISSION MASS/MODE		0.0035118		0.0038197		0.30258									
EMISSION MASS/RATED HP		2.1949E-05		2.3873E-05		0.0018911									
MODE EMIS./STD. CYCLE %		1.1552		1.5915		4.5027									
CAL. FUEL AIR RATIO = 0.081680				MEAS. FUEL AIR RATIO = 0.079208				DIFF MEAS. & CAL. F/A PERCENT = 3.1210							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		429.00		442.10		425.49		351.63							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		1050.3		-183.75		1054.9		1184.2		1333.9		1333.6			
ENGINE OIL		OIL T		OIL T		OIL P		MANIFOLD PRESSURE = 28.201							
		188.44		186.09		73.067									
DYNO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.286									
		296.35		2623.2											
INDUCTION AIR		TAIRT1		TAIRT2		TAIRT1		TAIRT2							
		55.569		55.932		68.911		54.881							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		82.416		4.8598		54.036		3029.3							
CELL TEMP. = 81.342				HEATER TEMP = 82.518				COOLER TEMP = 49.671							

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NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDEIT PFC 04/01/76 12:00:49.500 FAC SEX15 PGM C003 RDG 2789

LEANOUT 25 BTDC TO CL APP 59 DEG. HUM=30% MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.100 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	58.840	29.150	167.87	766.13	2.5672	14.585

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRDN	FPIP
	67.563	5.4005	44.974	66.332	61.806	5.0480

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	61.953	3.0822	3.6402	10109.	31.781	29.614

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	31.781	23.518	23.456	0.53863	121.14

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.080673	0.080404	1.2041	2430.2	2431.9	260.28	120.44

WET CORRECTION FACTOR = 0.86120 EXHAUST MLE. WT. = 27.627 EXHAUST DENSITY = 0.071532 EXHAUST FLOW RATE = 11610.

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1492.3	823.38	6.1395	11.2670	0.14771
CORRECTED CONC. TO WET BASIS			5.2873	9.7034	0.12721

	HC	NOX	CO
EMISSION RATE	0.62207	1.1376	44.567
EMISSION MASS/MODE	0.051835	0.094799	3.7139
EMISSION MASS/RATED HP	0.00032397	0.00059249	0.023212
MODE EMIS./STD. CYCLE %	17.051	39.500	55.266

CAL. FUEL AIR RATIO = 0.080118 MEAS. FUEL AIR RATIO = 0.080673 DIFF MEAS. & CAL. F/A PERCENT = -0.68764

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	377.16	399.80	413.50	345.17

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SFXT-1	SEXT-2
	1131.0	-454.00	1092.6	1073.4	1257.5	1258.1

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 26.463
	187.24	190.78	73.019	

DYN. COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.223
	248.99	2370.6	

INDUCTION AIR	TAIPT1	TAIPT2	TAIPT1	TAIPT2
	58.488	58.840	131.21	55.166

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	84.121	4.9017	54.102	3031.9

CFLI TEMP. = 83.198 HEATER TEMP = 82.747 COOLER TEMP = 51.573

NASA-LEWIS PRELIMINARY DATA 04/02/76 CANDEII REC 04/01/76 12:04:19.052 FAC SEX15 PGM C003 RDG 2790

LEANOUT 25 BTDC TO CL APP 59 DEG. HUM=30% MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PPESSURE = 29.100 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	60.195	29.100	104.26	460.45	1.5427	14.408

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	70.484	5.5031	44.899	45.911	40.375	6.0540

COOLING AIR	TEMP	WFL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	62.295	2.9898	3.5931	9939.3	29.340	29.009

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	29.340	9.8790	23.004	0.52825 65.278

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.086005	0.085723	1.2837	2352.7	2354.6	144.60	64.773

WET CORRECTION FACTOR = 0.86247 EXHAUST MOLE. WT. = 27.213 EXHAUST DENSITY = 0.070462 EXHAUST FLOW RATE = 7257.4

MEASURED CONC.	PART PER MILLION WFT	PER CENT
HC PPM	NOX PPM	CO2 DRY
1883.5	245.46	10.1890
CORRECTED CONC. TO WFT BASIS	CO DRY	O2 DRY
	8.1907	0.14059
	7.0642	0.12126

EMISSION RATE	HC	NOX	CO
	0.49072	0.21199	37.220
EMISSION MASS/MODE	0.049072	0.021199	3.7220
EMISSION MASS/RATED HP	0.00030670	0.00013249	0.023263
MODE EMIS./STD. CYCLE %	16.142	8.8329	55.387

CAL. FUEL AIR RATIO = 0.085216 MEAS. FUEL AIR RATIO = 0.086005 DIFF MEAS. & CAL. F/A PERCENT = -0.91737

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	332.21	338.61	344.20	440.61

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1540.9	-454.00	1045.2	997.30	1098.5	1097.7

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.371
	187.05	205.76	72.567	

CYAN COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.154
	145.00	2301.8	

INDUCTION AIR	TAIPT1	TAIPT2	TAIPT1	TAIPT2
	50.771	50.195	115.45	55.879

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	64.753	4.8841	54.129	3025.4

CELL TEMP. = 83.603 HEATED TEMP = 92.837 COOLED TEMP = 52.006

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NASA-LEWIS		PRELIMINARY DATA		04/02/76	CADDEIT	REC 04/02/76 12:14:07.334		FAC SEX15	PGM C003	RDG 2791	
LEANOUT 25 BTDC-10 CL APP 59 DEG. HUM=30%				MODE = 3.0000		NO. SCANS = 5					
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.100		RATED HP. = 160.00		HC RATIO = 2.1250			
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL					
	57.375	29.099	208.41	962.55	3.4257	14.765					
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP					
	65.502	5.3849	45.029	76.192	72.802	6.0420					
COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT					
	60.114	3.180	3.9358	10704.	36.006	31.004					
REL-HUM	1	2	HUMIDITY	H2O VAPOR CORRECTED HP							
	36.006	15.015	24.913	0.57208		157.88					
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP				
	0.075634	0.075366	1.1289	2693.6	2696.4	296.75	152.19				
WET CORRECTION FACTOR = 0.84739		EXHAUST MOLE. WT. = 28.036		EXHAUST DENSITY = 0.072593		EXHAUST FLOW RATE = 14309.					
MEASURED CONC.	PART PER MILLION WET		PER CENT								
	HC PPM	NOX PPM	CO DRY	CO2 DRY	CO2 DRY						
	1203.8	724.27	5.2389	11.7600	0.086409						
CORRECTED CONC. TO WET BASIS			4.4394	9.9649	0.073222						
EMISSION RATE	HC	NOX	CO								
	0.61842	1.2333	46.120								
EMISSION MASS/MODE	0.0030921	0.0061666	0.23060								
EMISSION MASS/RATED HP	1.9326E-05	3.9541E-05	0.0014413								
MODE EMISS./STD. CYCLE %	1.0171	2.5694	3.4316								
CAL. FUEL AIR RATIO = 0.078151		MEAS. FUEL AIR RATIO = 0.075634		DIFF MEAS. & CAL. F/A PERCENT = 3.3271							
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4							
	424.04	435.93	428.68	213.92							
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2					
	909.98	-20.736	1174.6	1244.3	1355.6	1355.6					
ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.169							
	189.40	192.44	73.507								
DYAN COND.	TORQUE	RPM	CYL. RACK PRESSURE = 29.279								
	292.72	2550.2									
INDUCT ION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2							
	56.986	57.375	139.54	55.161							
ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW							
	83.031	3.9235	54.081	2727.3							
CELL TEMP. = 82.142		HEATED TEMP = 82.990		COOLER TEMP = 50.194							

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NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDFF1 REC 04/02/76 12:27:00.819 FAC SEX15 PGM C003 RDG 2792

LEANOUT 25 BTDC TO CL APP 59 DEG. HUM=30% MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. PARAMETRIC PRESSURE = 29.110 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.608	29.047	167.25	763.58	2.6078	14.594

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW FROM	FPIP
	69.369	5.4080	44.928	57.369	57.276	6.0480

COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	62.871	2.9906	3.5832	9940.9	31.531	29.989

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	31.531	8.5749	23.907	0.54899	120.50

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.075010	0.074754	1.1195	2429.1	2430.2	258.75	119.67

WET CORRECTION FACTOR = 0.85154 EXHAUST MOLE. WT. = 28.089 EXHAUST DENSITY = 0.072728 EXHAUST FLOW RATE = 11322.

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	1283.0	1159.4	4.7319	11.9860	0.18192
CORRECTED CONC. TO WET BASIS			4.0294	10.206	0.15491

	HC	NOX	CO
EMISSION RATE	0.52152	1.5622	33.122
EMISSION MASS/MODE	0.043460	0.13018	2.7601
EMISSION MASS/RATED HP	0.00027162	0.00091363	0.017251
MODE FMS./STD. CYCLE %	14.296	54.242	41.074

CAL. FUEL AIR RATIO = 0.076778 MEAS. FUEL AIR RATIO = 0.075010 DIFF MEAS. & CAL. F/A PERCENT = 2.3583

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	390.15	406.14	418.18	340.14

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1327.3	-454.00	1079.2	1141.3	1286.3	1286.9

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 26.379
	187.24	236.11	72.707	

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.223
	233.94	2347.7	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	59.292	59.508	135.46	55.233

ORIFICE AIR	TEMP	DELTA P	ORIF P	FLOW
	85.086	4.2051	54.164	3030.1

CFL TEMP. = 84.893 HEATER TEMP = 83.094 COOLER TEMP = 51.699





NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDEII REC 04/02/76 12:35:05.511 FAC SEX15 PGM C003 R06 2794

LEANOUT 25 BTDC TO CL APP 59 DEG. HUM=30% MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.110 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	57.520	29.112	208.57	963.81	3.4555	14.776

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIF
	66.739	5.3675	44.998	75.139	72.628	5.9597

COOLING AIR	TEMP	WHEEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	60.601	3.0161	3.5846	9988.2	36.108	31.159

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	36.108	19.460	25.097	0.57631	157.60

ENG. COND.	F/A DRY	F/A WET	EQ. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.075355	0.075086	1.1247	2694.1	2696.5	296.25	151.97

WET CORRECTION FACTOR = 0.84635 EXHAUST MOLE. WT. = 28.050 EXHAUST DENSITY = 0.072653 EXHAUST FLOW RATE = 14313.

MEASURED CONC.	PART PER MILLION WET	NOX PPM	CO DRY	PER CENT	CO2 DRY
	HC PPM	724.95	5.2568	11.7650	0.12273
CORRECTED CONC. TO WET BASIS			4.4491	9.9574	0.10388

	HC	NOX	CO
EMISSION RATE	0.62139	1.2348	46.232
EMISSION MASS/MODE	0.0031070	0.0061739	0.23116
EMISSION MASS/RATED HP	1.9419E-05	3.8587E-05	0.0014448
MODE EMIS./STD. CYCLE %	1.0220	2.5724	3.4399

CAL. FUEL AIR RATIO = 0.078056 MEAS. FUEL AIR RATIO = 0.075355 DIFF MEAS. & CAL. F/A PERCENT = 3.5838

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	428.04	441.18	429.74	225.69

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1076.3	-7.3621	1191.1	1298.8	1354.3	1354.3

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	188.33	254.44	73.215	28.237

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE
	292.55	2616.0	29.258

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	57.122	57.520	133.47	55.231

ORIFICE AIR	TEMP	DELTAP	DIFF	FLOW
	83.216	4.8529	54.143	3021.2

CELL TEMP. = 82.381 HEATED TEMP = 83.157 COOLER TEMP = 50.176

NASA-LEWIS		PRELIMINARY DATA		04/02/76	CADDEII	REC 04/02/76 12:48:27.901		FAC SEX15	PGM C003	RDG 2795	
LEANOUT 25 BTDC TO CL APP 59 DEG. HUM=30%				MODE = 4.2000		NO. SCANS = 5					
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.110		RATED HP. = 160.00		HC RATIO = 2.1250			
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL					
	59.572	29.107	167.35	763.62	2.6259	14.585					
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP					
	69.601	5.4170	44.922	59.915	56.595	6.0534					
COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	PFL-HUM	DEW-POINT					
	62.835	2.9870	3.5544	9934.2	31.769	30.109					
PFL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP						
	31.769	11.769	24.071	0.55275	121.06						
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	RHP				
	0.074113	0.073859	1.1062	2433.6	2435.4	259.50	120.24				
WET CORRECTION FACTOR = 0.84753		EXHAUST MOLE. WT. = 28.164		EXHAUST DENSITY = 0.072923		EXHAUST FLOW RATE = 11283.					
MEASURED CONC.	PART PER MILLION WET			PER CENT							
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY						
	1253.7	1163.7	4.7176	11.9840	0.17032						
CORRECTED CONC. TO WET BASIS				3.9983	10.157	0.14435					
EMISSION RATE	HC	NOX	CO								
	0.50787	1.5626	32.754								
EMISSION MASS/MODE	0.042322	0.13022	2.7295								
EMISSION MASS/RATED HP	0.00026451	0.00081385	0.017059								
MODE EMIS./STO. CYCLE %	13.922	54.257	40.617								
CAL. FUEL AIR RATIO = 0.076781		MEAS. FUEL AIR RATIO = 0.074113		DIFF MEAS. & CAL. F/A PERCENT = 3.5997							
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4							
	390.24	401.51	419.01	415.08							
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SFXT-1	SEXT-2					
	1674.2	-454.00	1122.1	1125.0	1285.1	1285.7					
ENGINE OIL	FOILT	SOILT	OILT	MANIFOLD PPESSURE = 26.354							
	187.32	85.342	72.703								
DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.266								
	254.84	2385.4									
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2							
	59.193	59.572	148.35	55.185							
ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW							
	85.112	3.8000	54.141	2707.0							
CELL TEMP. = 84.279		HEATER TEMP = 83.191		COOLER TEMP = 52.249							

NASA-LEWIS		PRELIMINARY DATA		04/02/76		CANDETT		REC 04/02/76 12:53:55.583		FAC SEX15		PGM C003		RNG 2796		
LEANOUT 25 BTDC TO CL APP 59 DEG. HUM=30%								MODE = 5.0000		NO. SCANS = 5						
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 29.110				RATED HP. = 160.00		HC RATIO = 2.1250				
COMB. AIR		TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL									
		58.090	29.105	103.23	465.77	1.4684	14.414									
COMB. FUEL		TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP									
		70.957	5.5160	44.886	43.300	38.365	6.0717									
COOLING AIR		TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT									
		60.817	2.9801	3.6881	9921.3	30.367	28.229									
REL-HUM		1	2	HUMIDITY	H2O VAPOR CORRECTED HP											
		30.367	47.213	22.068	0.50677 66.233											
ENG. COND.		F/A DRY	F/A WET	FOL. RATIO	RPM-1	RPM-2	TORQUE	BHP								
		0.082368	0.082109	1.2294	2354.2	2355.8	147.03	65.907								
WET CORRECTION FACTOR = 0.86275				EXHAUST MOLE. WT. = 27.493		EXHAUST DENSITY = 0.071186		EXHAUST FLOW RATE = 7102.6								
MEASURED CONC.		PART PER MILLION WET		PER CENT												
		HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY										
		1757.2	407.48	6.6488	11.0000	0.15045										
CORRECTED CONC. TO WET BASIS				5.7363	9.4905	0.12981										
EMISSION RATE		HC	NOX	CO												
		0.44805	0.34441	29.579												
EMISSION MASS/MODE		0.044805	0.034441	2.9579												
EMISSION MASS/PATED HP		0.00028003	0.00021525	0.018487												
MODE EMIS./STD. CYCLE %		14.738	14.350	44.017												
CAL. FUEL AIR RATIO = 0.081419				MEAS. FUEL AIR RATIO = 0.082368				DIFF MEAS. & CAL. F/A PERCENT = -1.1520								
CYL TEMP DEG.F		CYL-1	CYL-2	CYL-3	CYL-4											
		326.22	333.34	337.66	596.91											
EXT GAS TEMP DEG.F		EXT-1	EXT-2	EXT-3	EXT-4	SEXY-1	SEXY-2									
		1330.6	-454.00	1117.0	948.24	1093.1	1092.4									
ENGINE OIL		FOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.240											
		184.95	208.73	72.319												
DYNO COND.		TORQUE	RPM	CYL. BACK PRESSURE = 29.202												
		152.48	2304.7													
INDUCTION AIR		TAIRT1	TAIRT2	TAIRT1	TAIRT2											
		57.729	58.090	105.58	55.120											
ORIFICE AIR		TEMP	DELTA P	ORIF	FLOW											
		93.471	4.9372	54.121	3043.1											
CELL TEMP. = 81.897				HEATER TEMP = 83.240				COOLER TEMP = 52.330								

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NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDEII REC 04/02/76 12:59:53.712 FAC SFX15 PGM C003 RDG 2797

LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 30 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.110 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	58.063	29.124	208.84	964.70	3.3198	14.773

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	67.116	5.3912	44.989	73.017	71.302	5.9925

COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	61.250	3.1420	3.7094	10219.	33.989	30.369

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	33.989	3.28203	24.089	0.55317 155.73

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	PPV-2	TORQUE	BHP
	0.073911	0.073658	1.1032	2703.0	2705.5	293.66	151.14

WET CORRECTION FACTOR = 0.85322 EXHAUST MOL.F. WT. = 28.181 EXHAUST DENSITY = 0.072967 EXHAUST FLOW RATE = 14243.

MEASURED CONC.	PART PER MILLION WET	HC PPM	NOX PPM	CO DRY	PER CENT	CO2 DRY
		1089.1	1019.0	4.0095	12.3180	0.10431
CORRECTED CONC. TO WET BASIS				3.4211	10.510	0.089000

	HC	NOX	CO
EMISSION RATE	0.55691	1.7272	35.377
EMISSION MASS/MODE	0.0027846	0.0086360	0.17689
EMISSION MASS/(RATE) HP	1.7404E-05	5.3975E-05	0.0011055
MODE EMTS./STD. CYCLE %	0.91598	3.5983	2.6322

CAL. FUEL AIR RATIO = 0.075406 MEAS. FUEL AIR RATIO = 0.073911 DIFF MEAS. & CAL. F/A PERCENT = 2.0221

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	437.82	446.14	439.82	554.09

EXT GAS TEMP DEG.F	FXT-1	FXT-2	FXT-3	FXT-4	SEXT-1	SEXT-2
	1014.4	163.06	1135.9	1207.9	1384.5	1384.3

ENGINE OIL	SOILT	SOILT	OIL P	MANIFOLD PRESSURE = 28.174
	188.67	166.26	73.479	

DYNO COND.	TORQUE	QOM	CYL. BACK PRESSURE = 29.288
	287.01	2501.9	

INDUCTION AIR	TAIPT1	TAIPT2	TAIPT1	TAIPT2
	57.665	58.063	137.41	55.437

CRUISE AIR	TEMP	DELTA P	QRP	FLOW
	83.506	0.083108	54.069	302.54

CYL TEMP. = 82.319 HEATER TEMP = 83.254 COOLER TEMP = 50.527

NASA-LEWIS

PRELIMINARY DATA

04/02/76

GADDEIT

REC 04/02/76 13:03:18.532

FAC SEX15

PGM C003

RDG 2798

LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 30 %

MODE = 4.0000

NO. SCANS = 5

ENGINE TIMING = 25.000

DEG.

BAROMETRIC PRESSURE = 29.110

RATED HP. = 160.00

HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	58.615	29.105	168.83	770.93	2.7159	14.600

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	68.699	5.4299	44.945	56.695	55.869	6.0261

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	62.088	3.1584	3.6885	10248.	33.723	30.599

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	33.723	6.6727	24.559	0.56649	119.90

ENG. COND.	F/A DRY	F/A WET	FOL. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.072469	0.072215	1.0915	2432.0	2434.8	257.33	119.20

WET CORRECTION FACTOR = 0.95206	EXHAUST MOLE. WT. = 28.303	EXHAUST DENSITY = 0.073284	EXHAUST FLOW RATE = 11319.

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	NOX PPM	CO DRY
1088.7	1509.8	3.7073
		3.1589

CORRECTED CONC. TO WET BASIS

EMISSION RATE	HC	NOX	CO
	0.44240	2.0337	25.959
EMISSION MASS/MODE	0.036867	0.16948	2.1632
EMISSION MASS/RATED HP	0.00023042	0.0010592	0.013520
MODE EMIS./STD. CYCLE %	12.127	70.616	32.191

CAL. FUEL AIR RATIO = 0.074362	MEAS. FUEL AIR RATIO = 0.072469	DIFF MEAS. & CAL. F/A PERCENT = 2.6110

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	400.29	409.81	420.60	587.57

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1740.7	1402.50	1300.9	1140.0	1315.1	1315.5

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 26.605
	187.14	205.75	72.463	

DYNO COND.	TORQUE	PPM	CYL. BACK PRESSURE = 29.220
	277.49	2377.3	

INDUCTION AIR	TAIPT1	TAIPT2	TAIRT1	TAIRT2
	59.225	58.615	197.62	55.289

REFRIG AIR	TEMP	DELTA P	Q/F	FLOW
	84.086	1.0947	54.037	1473.0

CELL TEMP. = 82.877	HEATER TEMP = 83.247	COOLER TEMP = 52.933

NASA-LEWIS PRELIMINARY DATA 04/02/76 CANNELL REC 04/02/76 13:09:01.292 FAC SEX15 PGM C003 R0G 2799

LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 30 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.300 DEG. BAROMETRIC PRESSURE = 29.120 RATE HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.997	29.099	102.67	462.59	1.5819	14.417

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRCN	FPIP
	72.498	5.5271	44.845	39.834	35.440	6.0590

COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	62.745	2.9929	3.5962	9945.0	30.759	29.779

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	30.759	13.885	23.937	0.54967	65.494

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.076610	0.076349	1.1434	2351.9	2354.0	145.11	64.985

WET CORRECTION FACTOR = 0.85220 EXHAUST MOLE WT. = 27.956 EXHAUST DENSITY = 0.072384 EXHAUST FLOW RATE = 6902.3

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	1581.1	600.66	5.2410	11.6710	0.14399
CORRECTED CONC. TO WET BASIS			4.4564	9.9463	0.12271

	HC	NOX	CO
EMISSION RATE	0.39177	0.49336	22.381
EMISSION MASS/MODE	0.039177	0.049336	2.2381
EMISSION MASS/RATED HP	0.00024486	0.00030835	0.013988
MODE EMIS./STD. CYCLE %	12.887	20.557	33.306

CAL. FUEL AIR RATIO = 0.079226 MEAS. FUEL AIR RATIO = 0.076610 DIFF MEAS. & CAL. F/A PERCENT = 2.1082

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	334.96	341.09	348.41	479.32

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1178.1	-381.10	1289.4	1032.3	1125.9	1124.9

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.273
	186.83	256.07	72.411	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.183
	139.46	2352.3	

INDUCTION AIR	TAIPT1	TAIPT2	TAIPT1	TAIPT2
	59.990	59.997	132.44	55.747

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	84.859	0.037804	54.124	155.17

CELL TEMP. = 83.242 HEATER TEMP = 83.268 COOLER TEMP = 53.501



NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDETT REC 04/02/76 13:14:14.390 FAC SFX15 PGM C003 PDG 2800  
 LEANOUT 25 BTDC IN CL APP 59 DEG HUM = 30 % MODE = 3.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.120 RATED HP. = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	60.294	29.142	208.07	962.02	3.0584	14.782	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	69.422	5.3903	44.927	74.056	70.477	6.0066	
COOLING AIR	TEMP	INFL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	63.491	3.0944	3.6474	10132.	29.023	28.869	
REL-HUM	1	2	HUMIDITY	H2O VAPOR CORRECTED HP			
	22.023	12.681	22.254	0.51102	157.35		
ENG. COND.	F/A DRY	F/A WET	F/OU. RATIO	RPM-1	PPM-2	TORQUE	
	0.073260	0.073028	1.0934	2696.4	2698.3	295.19	
						RHP	
						151.55	
WET CORRECTION FACTOR = 0.8500				EXHAUST MOLE WT. = 28.236		EXHAUST DENSITY = 0.073110	
						EXHAUST FLOW RATE = 14164.	
MEASURED CONC.	PART PER MILLION WFT		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	1091.0	991.30	3.9345	12.3979	0.091709		
CORRECTED CONC. TO WET BASIS			3.3479	10.549	0.078035		
EMISSION RATE	HC	NOX	CO				
	0.54969	1.5709	34.427				
EMISSION MASS/MODE	0.0027485	0.0083544	0.17214				
EMISSION MASS/RATED HP	1.7178E-05	5.2215E-05	0.0010759				
MODE EMIS./STD. CYCLE %	0.90410	3.4810	2.5616				
CAL. FUEL AIR RATIO = 0.075260				MEAS. FUEL AIR RATIO = 0.073260		DIFF MEAS. & CAL. F/A PERCENT = 2.7311	
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	441.46	462.55	445.39	311.63			
EXT GAS TEMP DEG.F	FXT-1	FXT-2	FXT-3	FXT-4	SEXT-1	SEXT-2	
	1233.0	372.61	1345.7	1305.2	1395.7	1395.4	
ENGINE OIL	EGILT	SOILT	OILP	MANIFOLD PRESSURE = 28.164			
	188.75	226.34	73.315				
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.304				
	302.00	2626.2					
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2			
	59.942	60.294	52.875	55.537			
ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW			
	85.735	1.0393	54.151	1433.6			
CILL TEMP. =	84.612	HEATER TEMP = 83.261		COOLER TEMP = 50.500			

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NASA-LEWIS	PRELIMINARY DATA	04/02/76	CADDEII	REC 04/02/76 13:22:56.872	FAC SEX15	PGM C003	RDG 2801
LEANOUT 25 RTDC TO CL APP 59 DEG HUM = 30.7		MODE = 4.0000		NO. SCANS = 5			
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.120		RATED HP. = 160.00		HC RATIO = 2.1250
COMB. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS. TOTAL	
	59.112	29.042	166.40	758.01	2.5993	14.596	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	63.600	5.4200	44.949	54.701	54.461	5.9982	
COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	60.890	3.0175	3.6432	9990.7	32.229	30.069	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP			
	32.229	2.6783	24.004	0.55120 120.22			
ENG. COND.	F/A DRY	F/A WET	FOW. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.071847	0.071602	1.0724	2429.0	2430.4	258.31	119.46
WET CORRECTION FACTOR = 0.84933		EXHAUST MOLE. WT. = 28.355		EXHAUST DENSITY = 0.073422		EXHAUST FLOW RATE = 11101.	
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY			
	1117.5	1448.1	3.6160	12.5240	0.19802		
CORRECTED CONC. TO WET BASIS			3.0712	10.637	0.16818		
EMISSION RATE	HC	NOX	CO				
	0.44541	1.9131	24.752				
EMISSION MASS/MODE	0.037117	0.15942	2.0627				
EMISSION MASS/RATED HP	0.00023198	0.00099639	0.012892				
MODE EMIS./STD. CYCLE %	12.210	66.425	30.695				
CAL. FUEL AIR RATIO = 0.074273		MEAS. FUEL AIR RATIO = 0.071847		DIFF MEAS. & CAL. F/A PERCENT = 3.375%			
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	395.48	403.81	417.57	418.61			
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	810.64	-145.61	1154.5	1177.7	1308.6	1309.3	
ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 26.374			
	186.96	167.62	72.603				
DYMO COND.	TORQUE	RPM	CYL. PACK PRESSURE = 29.117				
	241.61	2340.5					
INDUCTION AIR	TAIPT1	TAIPT2	TAIRT1	TAIRT2			
	58.777	59.112	39.690	56.425			
CRIFICE AIR	TEMP	DELTAP	ORFP	FLOW			
	83.822	2.9868	54.133	2383.8			
CELL TEMP. = 83.048		HEATER TEMP = 83.337		COOLER TEMP = 50.816			

NASA-LEWIS PRELIMINARY DATA 04/02/76 CANDELL REC 04/02/76 13:29:20.242 FAC SEX15 PGM C003 RDG 2802

LEANOUT 25 ATOC TO CL APP 59 DEG HUM = 30 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.120 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	60.420	29.121	103.84	466.86	1.5320	14.406

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	72.693	5.5277	44.840	42.384	36.499	6.0951

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	61.466	3.0454	3.5489	10042.	29.060	28.979

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	29.060	12.639	22.970	0.52747	65.862

FNG. COND.	F/A DRY	F/A WET	FOLL. RATIO	RPM-1	PPM-2	TORQUE	BHP
	0.078179	0.077924	1.1669	2358.7	2360.8	145.47	65.333

WET CORRECTION FACTOR = 0.95863 EXHAUST MLE. WT. = 27.827 EXHAUST DENSITY = 0.072052 EXHAUST FLOW RATE = 7007.3

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM	CO DRY
	1612.7	11.7100
CORRECTED CONC. TO WET BASIS	NOX PPM	O2 DRY
	628.48	0.16160
	4.5418	0.13875

	HC	NOX	CO
EMISSION RATE	0.40569	0.52407	23.105
EMISSION MASS/MODE	0.040568	0.052407	2.3105
EMISSION MASS/RATED HP	0.00025355	0.00032755	0.014441
MODE EMISS./STD. CYCLE %	13.345	21.836	34.383

CAL. FUEL AIR RATIO = 0.078229 MFAS. FUEL AIR RATIO = 0.078179 DIFF MEAS. & CAL. F/A PERCENT = 0.063737

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	332.02	339.65	344.37	481.05

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1072.1	-139.11	1313.0	1036.4	1115.4	1114.7

ENGINE OIL	EQILT	SOILT	OILP	MANIFOLD PRESSURE = 18.352
	196.95	244.71	71.975	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.184
	140.20	2273.0	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	60.033	60.420	166.18	56.600

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	84.805	2.0269	54.094	1983.4

CELL TEMP. = 93.031 HEATER TEMP = 93.351 COOLER TEMP = 57.403

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NASA-LEWIS    PRELIMINARY DATA    04/02/76    CADDEII    REC 04/02/76 13:36:13.331    FAC SEX15    PGM C003    RDG 2803

LEANOUT 25 BTDC TO CI APP 59 DEG HUM = 30 %    MODE = 3.0000    NO. SCANS = 5

ENGINE TIMING = 25.000    DEG.    BAROMETRIC PRESSURE = 29.120    RATED HP. = 160.00    HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	PPY FLOW	VAPOR FLOW	PRESS TOTAL	
	60.231	29.143	207.50	957.04	3.6110	14.773	
COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	73.458	5.4098	44.899	65.809	64.959	6.0018	
COOLING AIR	TEMP	INDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	63.275	3.0958	3.6612	10134.	34.441	32.094	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	34.441	39.144	26.390	0.60599	154.43		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	PPM-1	RPM-2	TORQUE	BHP
	0.067819	0.067564	1.0122	2688.0	2690.2	290.28	148.56

WET CORRECTION FACTOR = 0.84954    EXHAUST MOLE. WT. = 28.530    EXHAUST DENSITY = 0.074130    EXHAUST FLOW RATE = 13846.

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM	CO DRY
	841.68	13.4240
	NOX PPM	CO DRY
	2070.0	0.19952
CORRECTED CONC. TO WET BASIS		
	1.8391	11.404
	1.5524	0.16950

EMISSION RATE	HC	NOX	CO
	0.41828	3.4107	15.705
EMISSION MASS/MODE			
	0.0020919	0.017054	0.078525
EMISSION MASS/RATED HP			
	1.3074E-05	0.00010658	0.00049078
MODE EMISS./STD. CYCLE %			
	0.68012	7.1056	1.1685

CAL. FUEL AIR RATIO = 0.070451    MEAS. FUEL AIR RATIO = 0.067819    DIFF MEAS. & CAL. F/A PERCENT = 3.9809

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4		
	442.86	449.00	447.22	426.24		
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1378.4	543.65	1469.9	1430.9	1418.6	1417.9
ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.386		
	188.40	172.55	73.391			
DYNO COND.	TORQUE	RPM	CYL. PACK PRESSURE = 29.230			
	287.51	2589.7				
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2		
	59.924	60.231	141.43	55.550		
ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW		
	85.779	1.9998	54.259	1969.1		

CELL TEMP. = 84.084    HEATER TEMP = 83.392    COOLER TEMP = 50.951

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NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDEII REC 04/02/76 13:40:11.682 FAC SEX15 PGM C003 RDG 2804  
 LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 30 ? MODE = 4.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.120 RATED HP. = 160.00 HC RATIO = 2.1250  

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	57.375	29.104	172.74	789.76	3.0570	14.624

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRCN	FPIP
	68.270	5.4425	44.957	55.099	54.479	6.0621

COOLING AIR	TEMP	WHEEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	60.881	3.1846	3.7963	10295.	38.768	32.494

REL-HUM	1	2	HUMIDITY	H2O VAPOR	CORRECTED HP
	38.769	2.5243	27.095	0.62220	120.80

ENG. COND.	F/A DRY	F/A WET	F/O2 RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.068982	0.068716	1.0296	2429.9	2432.5	259.78	120.19

 WET CORRECTION FACTOR = 0.85928 EXHAUST MOLE. WT. = 28.538 EXHAUST DENSITY = 0.073892 EXHAUST FLOW RATE = 11466.  

MEASURED CONC.	HC PPM	NOX PPM	CO DRY	PER CENT	CO2 DRY
	737.97	1994.6	2.3693	12.8600	0.71261
CORRECTED CONC. TO WET BASIS			2.0359	11.050	0.61233

EMISSION RATE	HC	NOX	CO
	0.30379	2.7217	16.948
EMISSION MASS/MODE	0.025316	0.22681	1.4124
EMISSION MASS/PATED HP	0.00015822	0.0014175	0.0088273
MODE EMISS./STD. CYCLE %	8.3276	94.503	21.017

 CAL. FUEL AIR RATIO = 0.069932 MEAS. FUEL AIR RATIO = 0.068982 DIFF MEAS. & CAL. F/A PERCENT = 1.3780  

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	405.35	417.00	405.30	553.81

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SFXT-1	SEXT-2
	1240.6	-39.093	965.25	1271.5	1344.8	1345.0

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 26.969
	196.98	187.28	72.343	

DYND COND.	TORQUE	RPM	CYL. RACK PRESSURE = 29.228
	265.73	2335.7	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	56.941	57.375	134.69	55.203

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	83.023	1.0260	54.098	1428.1

 CELL TEMP. = 82.169 HEATER TEMP = 83.358 COOLER TEMP = 53.204

NASA-LEWIS PPELIMINARY DATA 04/02/76 CADDEII RFC 04/02/76 13:44:06.659 FAC SEX15 PGM C003 RDG 2805  
 LEANOUT 25 BTDC TO CL APP 50 DFG HUM = 30 % MODE = 5.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.300 DEG. BAROMETRIC PRESSURE = 29.120 RATED HP. = 160.00 HC RATIO = 2.1250  

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	58.723	29.116	104.00	468.23	1.6386	14.408	
COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	71.833	5.5427	44.863	39.263	33.063	6.0453	
COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	61.556	3.0532	3.6776	10056.	32.919	30.209	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	32.919	5.7827	24.496	0.56252	66.412		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	RHP
	0.070613	0.070367	1.0539	2357.2	2358.5	147.03	65.991
WET CORRECTION FACTOR = 0.95545				EXHAUST MOLE. WT. = 28.453		EXHAUST DENSITY = 0.073698	
				EXHAUST FLOW RATE = 6824.3			
MEASURED CONC.	PART PER MILLION WET			PER CENT			
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	1115.9	1168.5	2.6270	12.935	0.28609		
CORRECTED CONC. TO WET BASIS							
			2.2473	11.065	0.24474		
EMISSION RATE	HC	NOX	CO				
	0.27339	0.94894	11.134				
EMISSION MASS/MODE	0.027339	0.094894	1.1134				
EMISSION MASS/PATED HP	0.00017087	0.00059308	0.0069587				
MODE EMIS./STD. CYCLE	8.9930	30.539	16.568				
CAL. FUEL AIR RATIO = 0.071958				MEAS. FUEL AIR RATIO = 0.070613		DIFF MEAS. & CAL. F/A PERCENT = 1.9045	
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	345.21	347.15	359.13	443.30			
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	1215.0	254.31	1429.3	1158.1	1185.5	1185.1	
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.518			
	197.07	298.93	72.119				
DYNO COND.	TORQUE	RPM	CYL. RACK PRESSURE = 29.224				
	144.15	2323.2					
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2			
	58.307	58.723	135.54	55.773			
ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW			
	83.568	1.0437	54.106	1439.5			
CELL TEMP. = 82.152	HEATER TEMP = 83.344		COOLER TEMP = 53.717				

NASA-LFWTS PRELIMINARY DATA 04/02/76 CADDEII REC 04/02/76 13:49:21.032 FAC SFX15 PGM C003 RDG 2806

LEANDUT 25 BTDC TO CL APP 59 DEG HUM = 30 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DES. BAROMETRIC PRESSURE = 29.130 RATED HP. = 150.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.066	29.140	209.07	965.49	3.6683	14.784

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	70.217	5.4086	44.906	68.312	66.412	5.9676

COOLING AIR	TEMP	INDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	62.340	3.0800	3.6668	10105.	36.207	32.304

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	36.207	1.2641	26.596	0.61073 156.41

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	RHP
	0.068785	0.068525	1.0266	2703.6	2705.8	292.65	150.65

WET CORRECTION FACTOR = 0.85539 EXHAUST MOLE. WT. = 28.555 EXHAUST DENSITY = 0.073937 EXHAUST FLOW RATE = 14005.

MEASURED CONC.	PART PER MILLION WET	HC PPM	NOX PPM	CO DRY	PER CENT	CO2 DRY	O2 DRY
	865.09	2142.1	1.7629	13.4560	0.21318		
CORRECTED CONC. TO WET BASIS			1.5079	11.510	0.18235		

	HC	NOX	CO
EMISSION RATE	0.43498	3.5703	15.334
EMISSION MASS/MODE	0.0021749	0.017852	0.076668
EMISSION MASS/RATED HP	1.3593E-05	0.00011157	0.00047917
MODE EMIS./STD. CYCLE %	0.71543	7.4382	1.1409

CAL. FUEL AIR RATIO = 0.070264 MEAS. FUEL AIR RATIO = 0.068785 DIFF MEAS. & CAL. F/A PERCENT = 2.1505

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	431.21	439.56	440.09	607.19

FXT GAS TEMP DEG.F	FXT-1	FXT-2	FXT-3	FXT-4	SFXT-1	SFXT-2
	1019.2	573.69	1494.9	1371.6	1416.9	1416.0

ENGINE OIL	FOILT	STILT	OILT	MANIFOLD PRESSURE
	198.11	249.20	74.003	28.236

DYMO COND.	TOPDUE	RPM	CYL. BACK PRESSURE
	297.78	2516.4	29.292

INDUCTION AIR	TAIPT1	TAIPT2	TAIRT1	TAIRT2
	58.696	59.066	84.544	55.674

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	84.331	2.0407	54.174	1990.7

CELL TEMP. = 83.462 HEATER TEMP = 83.330 COOLER TEMP = 51.654

NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDEII REC 04/02/76 13:54:48.487 FAC SEX15 PGM C003 RDG 2807

LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 30 ° MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.130 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.536	29.145	176.32	807.19	2.4978	14.623

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	71.090	5.4335	44.883	56.016	54.224	6.0954

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	63.258	3.1074	3.8566	10155.	28.714	28.149

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	28.714	20.794	21.661	0.49740	121.36

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.067176	0.066969	1.0026	2435.5	2437.0	260.14	120.63

WET CORRECTION FACTOR = 0.85075 EXHAUST MOLE. WT. = 28.572 EXHAUST DENSITY = 0.074238 EXHAUST FLOW RATE = 11637.

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	693.67	1978.2	2.5734	12.7060	0.80280
CORRECTED CONC. TO WET BASIS			2.1894	10.810	0.68299

	HC	NOX	CO
EMISSION RATE	0.28980	2.7394	18.497
EMISSION MASS/MODE	0.024150	0.22829	1.5414
EMISSION MASS/RATED HP	0.00015094	0.0014268	0.0096339
MODE EMIS./STD. CYCLE %	7.9440	95.120	22.938

CAL. FUEL AIR RATIO = 0.070062 MEAS. FUEL AIR RATIO = 0.067176 DIFF MEAS. & CAL. F/A PERCENT = 4.2957

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	407.83	421.09	406.64	490.40

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1104.3	227.78	1001.1	1205.3	1346.1	1346.4

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	187.09	180.34	72.579	27.191

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	260.23	2363.7	29.276

INDUCTION AIR	IAIPT1	IAIRT2	TAIPT1	TAIRT2
	59.130	59.536	76.914	55.100

REF FICE AIR	TEMP	DELTA P	DRFP	FLW
	86.112	1.9979	54.136	1969.4

CELL TEMP. = 84.217 HEATER TEMP = 83.316 COOLER TEMP = 53.267

NASA-LEWIS		PRELIMINARY DATA		04/02/76	CADDFII	REC 04/02/76 13:59:34.014		FAC SEX15	PGM C003	RDG 2808	
LEANDUIT 25 BTDC TO CL APP 59 DEG HUM = 30 %				MODE = 5.0000		NO. SCANS = 5					
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.130		RATED HP. = 160.00		HC RATIO = 2.1250			
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL					
	60.186	29.124	103.12	463.91	1.5225	14.397					
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP					
	73.867	5.5493	44.809	39.113	33.816	6.0582					
COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT					
	63.204	2.9821	3.5098	9924.9	29.288	28.969					
REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP							
	29.288	15.063	22.973	0.52753		65.506					
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP				
	0.072894	0.072656	1.0880	2353.5	2355.5	145.06	65.002				
WET CORRECTION FACTOR = 0.86392				EXHAUST MOLE. WT. = 28.267		EXHAUST DENSITY = 0.073190		EXHAUST FLOW RATE = 6821.2			
MEASURED CONC.	PART PER MILLION WET		PER CENT								
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY						
	1165.1	1143.2	2.8044	12.8770	0.26621						
CORRECTED CONC. TO WET BASIS			2.4228	11.124	0.22998						
EMISSION RATE	HC	NOX	CO								
	0.28532	0.92798	11.998								
EMISSION MASS/MODE	0.028532	0.92798	1.1998								
EMISSION MASS/RATED HP	0.00017832	0.00057998	0.0074928								
MODE EMIS./STD. CYCLE %	9.3854	38.666	17.854								
CAL. FUEL AIR RATIO = 0.072397		MEAS. FUEL AIR RATIO = 0.072894		DIFF MEAS. & CAL. F/A PERCENT = -0.68170							
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4							
	343.12	346.61	359.50	392.74							
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2					
	1251.1	393.50	1505.7	1113.1	1170.8	1169.8					
ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.447							
	187.07	285.92	71.819								
DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.176								
	142.91	2296.1									
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2							
	59.762	60.186	165.78	55.948							
REFICE AIR	TEMP	DELTA P	REF P	FLOW							
	85.717	2.8471	53.308	2325.9							
CELL TEMP. = 83.611		HEATER TEMP = 83.254		COOLER TEMP = 54.257							

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NASA-LEWIS		PRELIMINARY DATA		04/02/76	CADDEII	REC 04/02/76 14:52:35.528	FAC SEX15	PGM C003	RDG 2810
LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 60 %				MODE = 4.0000		NO. SCANS = 5			
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.130		RATED HP. = 160.00		HC RATIO = 2.1250	
COMB. AIR	TEMP	PRFSS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL			
	58.244	29.164	167.02	759.03	4.8984	14.600			
COMP. FUEL	TEMP	PRFSS	DENSITY	TURBO FLOW	FLOW TRON	FPIP			
	67.903	5.3843	44.967	54.446	61.536	6.0534			
COOLING AIR	TEMP	UNDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT			
	62.079	2.9428	3.5259	9851.3	62.285	45.420			
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP				
	62.285	10.737	45.175	1.0374	120.81				
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	PPM-2	TORQUE	BHP		
	0.081072	0.080552	1.2100	2433.6	2435.3	257.88	119.49		
WET CORRECTION FACTOR = 0.85004		EXHAUST MOLE. WT. = 27.595		EXHAUST DENSITY = 0.071450		EXHAUST FLOW RATE = 11552.			
MEASURED CONC.	PART PER MILLION WET		PER CENT						
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY				
	1586.2	754.09	7.0325	10.8240	0.13803				
CORRECTED CONC. TO WET BASIS			5.9779	9.2005	0.11733				
EMISSION RATE	HC	NOX	CO						
	0.65786	1.0367	50.140						
EMISSION MASS/MODE	0.054822	0.086394	4.1783						
EMISSION MASS/RATED HP	0.00034263	0.00053996	0.026114						
MODE EMIS./STD. CYCLE %	18.033	35.997	62.177						
CAL. FUEL AIR RATIO = 0.082255		MEAS. FUEL AIR RATIO = 0.081072		DIFF MEAS. & CAL. F/A PERCENT = 1.4589					
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4					
	374.50	391.22	414.15	286.95					
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2			
	1177.8	-454.00	1211.1	1124.9	1238.6	1238.7			
ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 26.188					
	187.22	352.93	72.475						
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.189						
	259.20	2371.0							
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2					
	57.891	58.244	18.589	55.292					
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW					
	84.525	0.051505	54.002	203.33					
CELL TEMP. = 83.779		HEATER TEMP = 83.538		COOLER TEMP = 53.258					

NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDET REC 04/02/76 14:55:49.302 FAC SEX15 PGM C003 RDG 2811  
 LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 60 % MODE = 5.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.130 RATED HP. = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.428	29.139	103.85	465.75	2.7756	14.411
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	70.636	5.4905	44.895	46.446	41.333	6.0330
COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	62.547	2.9419	3.4275	9849.8	54.462	43.015
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP	
	54.462	0.29803	41.716	0.95795	66.517	
ENG. COND.	F/A DRY	F/A WET	FQJ. RATIO	RPM-1	RPM-2	TORQUE BHP
	0.088853	0.088326	1.3262	2355.2	2357.2	146.51 65.704
WET CORRECTION FACTOR = 0.86092		EXHAUST MILE. WT. = 27.001		EXHAUST DENSITY = 0.069912		EXHAUST FLOW RATE = 7293.5
MEASURED CONC.	PART PER MILLION WET		PER CENT			
	HC PPM	NOX PPM	CO DRY	CO2 DRY	NO DRY	
	2125.5	189.97	9.2186	9.57470	0.16238	
CORRECTED CONC. TO WET BASIS			7.9365	8.2431	0.13979	
EMISSION RATE	HC	NOX	CO			
	0.55654	0.16484	42.025			
EMISSION MASS/MODE	0.055654	0.016484	4.2025			
EMISSION MASS/RATED HP	0.00034784	0.00010302	0.026266			
MODE FMIS./STD. CYCLE %	18.307	6.8692	62.537			
CAL. FUEL AIR RATIO = 0.087986		MEAS. FUEL AIR RATIO = 0.088853		DIFF MEAS. & CAL. F/A PERCENT = -0.97538		
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4		
	328.17	341.99	345.32	401.16		
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	841.11	-454.00	745.80	935.20	1083.9	1083.0
ENGINE OIL	FOILT	SOILT	OIL	MANIFOLD PRESSURE = 18.336		
	187.37	170.74	71.599			
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.188			
	146.84	2237.6				
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2		
	59.030	59.428	132.94	55.824		
CRIPICE AIR	TEMP	DELTA P	ORSP	FLOW		
	85.156	2.0095	55.227	1974.8		
CELL TEMP. = 84.156	HEATED TEMP = 83.441		COOLER TEMP = 53.036			

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NASA-LFVTS PRELIMINARY DATA 04/02/76 CADDFII REC 04/02/76 15:07:03.516 FAC SEX15 PGM C003 R0G 2812  
 LEANCUT 25 RTDC TO CL APP 59 DEG HUM = 60 % MODE = 3.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.140 RATED HP. = 160.00 HC RATIO = 2.1250  

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.093	29.117	210.33	968.44	6.2898	14.802
COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW FROM	FPIP
	67.590	5.3306	44.976	83.210	80.327	6.0204
COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	62.556	3.0421	3.5904	10036.	61.632	45.945
REL-HUM	1	2	HUMIDITY	H <sub>2</sub> O VAPOR	CORRECTED HP	
	61.632	17.026	45.456	1.0438	159.39	
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE
	0.082945	0.082410	1.2380	2713.9	2716.4	295.29
						RHP
						152.59
WET CORRECTION FACTOR = 0.85085			EXHAUST MOLE WT. = 27.448	EXHAUST DENSITY = 0.071070		EXHAUST FLOW RATE = 14845.
MEASURED CONC.	PART PER MILLION WET			PPM CFMT		
	HC PPM	NOX PPM	CO DRY	CO <sub>2</sub> DRY	O <sub>2</sub> DRY	
	1512.3	350.71	7.6621	10.4790	0.072997	
CORRECTED CONC. TO WET BASIS				8.9161	0.062101	
	HC	NOX	CO			
EMISSION RATE	0.80648	0.61957	70.262			
EMISSION MASS/MODE	0.0040324	0.0030978	0.35131			
EMISSION MASS/RATED HP	2.5203E-05	1.9362E-05	0.0021957			
MODE EMIS./STD. CYCLE %	1.3264	1.2908	5.2278			
CAL. FUEL AIR RATIO = 0.083976			MEAS. FUEL AIR RATIO = 0.082945	DIFF MEAS. & CAL. F/A PERCENT = 1.2429		
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4		
	424.63	441.19	419.56	249.23		
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1187.3	-345.91	840.62	1116.8	1313.8	1313.5
ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.264		
	186.83	257.88	73.299			
DYMO COND.	TORQUE	RPM	CYL. PACK PRESSURE = 29.283			
	295.83	2636.6				
INDUCTION AIR	TAIPT1	TAIPT2	TAIRT1	TAIRT2		
	59.768	59.093	135.43	55.623		
ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW		
	85.349	2.0562	55.302	1995.9		
CELL TEMP. = 82.550		HEATER TEMP = 83.795		COOLER TEMP = 51.754		

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NASA-LEWIS		PRELIMINARY DATA		04/02/76		CADDEII		REC 04/02/76 15:09:44.706		FAC SEX15		PGM C003		R0G 2813			
LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 60 %				MODE = 4.0000				NO. SCANS = 5									
ENGINE TIMING = 25.000				DEG.				BAROMETRIC PRESSURE = 29.140				RATED HP. = 160.00				HC RATIO = 2.1250	
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL					
		57.493		29.145		168.35		765.02		5.3144		14.609					
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP					
		66.793		5.3888		44.997		61.104		60.996		5.9610					
COOLING AIR		TEMP		WDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT					
		60.989		2.9679		3.6286		9898.5		68.874		47.366					
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP							
		69.874		50.501		49.628		1.1167		121.52							
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP			
		0.079731		0.079181		1.1900		2434.3		2436.7		259.29		120.18			
WET CORRECTION FACTOR = 0.84393				EXHAUST MOLE WT. = 27.702				EXHAUST DENSITY = 0.07177				EXHAUST FLOW RATE = 11590.					
MEASURED CONC.		PART PER MILLION WET		PER CFMT													
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY							
		1555.8		744.17		6.9974		10.8220		0.11589							
CORRECTED CONC. TO WET BASIS						5.9053		9.1328		0.098648							
EMISSION RATE		HC		NOX		CO											
		0.64733		1.0264		49.490											
EMISSION MASS/MODE		0.053944		0.085532		4.1409											
EMISSION MASS/RATED HP		0.00033715		0.00053458		0.025880											
MODE EMIS./STD. CYCLE		17.745		35.638		61.620											
CAL. FUEL AIR RATIO = 0.082263				WEAS. FUEL AIR RATIO = 0.079731				DIFF MEAS. & CAL. F/A PERCENT = 3.1758									
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4									
		382.19		399.92		415.54		651.06									
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2					
		1106.5		-454.00		878.02		1003.3		1251.7		1252.0					
ENGINE OIL		FOILT		SOILT		OILP		MANIFOLD PRESSURE = 26.392									
		187.02		231.22		71.971											
DYNO COND.		TORQUE		RPM		CYL. RACK PRESSURE = 29.160											
		255.79		2336.0													
INDUCTION AIR		IAIRT1		IAIPT2		TAIRT1		TAIRT2									
		57.131		57.493		151.89		55.282									
ORIFICE AIR		TEMP		DELTA P		ORIF		FLOW									
		83.568		1.9813		54.130		1964.5									
CELL TEMP. = 81.879				HEATER TEMP = 83.746				COOLER TEMP = 52.978									

NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDELL REC 04/02/76 15:13:12.385 FAC SEX15 PGM C003 RDG 2814

LEANOUT 25 RTDC TO CL APP 59 DEG HUM = 60 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.140 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	58.678	29.129	103.33	463.37	2.9632	14.418

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	69.815	5.4908	44.916	43.946	40.588	6.1179

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	DEL-HUM	DEW-POINT
	61.529	3.0496	3.6574	10050.	60.019	44.855

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	60.019	5.4925	44.765	1.0280	65.534

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.087593	0.067637	1.3074	2348.5	2349.8	144.75	64.732

WET CORRECTION FACTOR = 0.85480 EXHAUST MOLE. WT. = 27.094 EXHAUST DENSITY = 0.070153 EXHAUST FLOW RATE = 7225.9

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM NOX PPM CO DRY CO2 DRY O2 DRY	
	2065.3 187.44 3.2813 9.55330 0.13953	
CORRECTED CONC. TO WET BASIS		7.9337 8.1662 0.11927

EMISSION RATE	HC	NOX	CO
	0.53576	0.16118	41.620
EMISSION MASS/MODE	0.053576	0.016117	4.1620
EMISSION MASS/RATED HP	0.00033485	0.00010073	0.026013
MODE EMIS./STD. CYCLE %	17.624	6.7156	61.935

CAL. FUEL AIR RATIO = 0.088196 MEAS. FUEL AIR RATIO = 0.087593 DIFF MEAS. & CAL. F/A PERCENT = 0.68829

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	321.95	335.26	337.16	547.97

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	801.72	-454.00	706.18	975.32	1082.7	1081.4

ENGINE OIL	OILT	OILT	OILP	MANIFOLD PRESSURE = 18.287
	187.19	257.57	71.551	

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.239
	145.55	2315.2	

INDUCTION AIR	TAIPT1	TAIPT2	TAIRT1	TAIRT2
	58.289	58.678	112.20	55.812

CRIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	84.244	2.9906	54.645	2384.4

CEIL TEMP. = 82.618 HEATER TEMP = 83.829 COOLER TEMP = 53.492

NASA-Lewis

PRELIMINARY DATA

04/02/76

CADDREII

REC 04/02/76 16:41:44.652

FAC SEX15

PGM C003

RDG 2819

LEANOUT 25 RTDC TO CL APP 59 DEG 4UM = 60 °

MODE = 3.0000

NO. SCANS = 5

ENGINE TIMING = 25.000

DEG.

BAROMETRIC PRESSURE = 29.160

RATED HP. = 160.00

HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	57.855	29.158	211.31	973.02	6.5058	14.808

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	69.306	5.3534	44.930	81.894	78.095	5.9817

COOLING AIR	TEMP	INDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	59.762	3.3014	3.7999	10502.	66.348	45.721

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	66.348	54.705	45.903	1.0748	157.37

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TRPOUE	BHP
	0.080260	0.079727	1.1979	2698.3	2700.3	294.00	151.04

WET CORRECTION FACTOR = 0.84586 EXHAUST W/F. WT. = 27.660 EXHAUST DENSITY = 0.071617 EXHAUST FLOW RATE = 14767.

MEASURED CONC.	PART PER MILLION WGT	PER CENT
HC PPM	1470.0	0.11997
NOX PPM	451.74	0.10148
CO DRY	7.0462	
CORRECTED CONC. TO WET BASIS	5.9501	

EMISSION RATE	HC	NOX	CO
	0.78412	0.79387	63.900
EMISSION MASS/MODE	0.0039206	0.0039693	0.31950
EMISSION MASS/FATED HP	2.4504E-05	2.4808E-05	0.0019969
MODE EMIS./STD. CYCLE %	1.2897	1.5539	4.7545

CAL. FUEL AIR RATIO = 0.082282 MEAS. FUEL AIR RATIO = 0.080260 DIFF MEAS. & CAL. F/A PERCENT = 2.5187

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	420.92	416.14	393.13	432.55

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1275.0	-390.17	884.83	709.68	1257.2	1257.3

ENGINE OIL	FILIT	SOILT	OILP	MANIFOLD PRESSURE
	141.54	134.99	76.372	28.223

ENG. COND.	TRPOUE	RPM	CYL. BACK PRESSURE
	299.83	2588.4	29.280

INDUCTION AIR	TAIPT1	TAIPT2	TAIRT1	TAIRT2
	57.574	57.855	-23.838	55.640

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	63.119	2.0153	53.413	1981.1

CELL TEMP. = 79.605 HEATED TEMP = 23.232 COOLER TEMP = 51.312

ORIGINAL PAGE IS  
OF POOR QUALITY

NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDEII REC 04/02/76 16:44:08.175 FAC SEX15 PGM C003 RDG 2820

LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 60 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.160 RATED HP. = 160.00 HC RATIO = 2.1250

COND. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	58.389	29.195	166.81	757.83	5.0611	14.608

COND. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	68.967	5.4041	44.939	65.830	62.076	5.9823

COOLING AIR	TEMP	UNEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	60.691	3.3089	3.8680	10515.	64.137	46.331

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	64.137	11.165	46.748	1.0735	120.16

ENG. COND.	F/A DRY	F/A WET	EQ. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.081913	0.081369	1.2226	2429.0	2430.9	256.80	118.77

WET CORRECTION FACTOR = 0.85927 EXHAUST MOLE. WT. = 27.529 EXHAUST DENSITY = 0.071279 EXHAUST FLOW RATE = 11573.

MEASURED CONC.	PART PER MILLION WET			PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1468.7	596.90	6.4277	11.1230	0.15091
CORRECTED CONC. TO WET BASIS			5.5231	9.5579	0.12968

	HC	NOX	CO
EMISSION RATE	0.61027	0.92210	46.409
EMISSION MASS/MODE	0.050956	0.068509	3.8674
EMISSION MASS/RATED HP	0.00031785	0.00042818	0.024171
MODE EMISS./STD. CYCLE %	16.729	28.545	57.550

CAL. FUEL AIR RATIO = 0.080749 MEAS. FUEL AIR RATIO = 0.081913 DIFF MEAS. & CAL. F/A PERCENT = -1.4202

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	378.26	399.86	395.23	513.88

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1400.5	-454.00	947.52	846.15	1209.7	1210.7

ENGINE OIL	TEMP	SOILT	OILP	MANIFOLD PRESSURE = 26.272
	154.45	197.81	72.471	

DYNO COND.	TORQUE	PPM	CYL. BACK PRESSURE = 29.361
	265.72	2386.0	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	58.090	58.389	23.410	55.589

REFRIG AIR	TEMP	DELTA P	ORFP	FLOW
	83.453	1.0397	53.378	1436.9

CELL TEMP. = 80.002 HEATER TEMP = 83.184 COOLER TEMP = 51.835

NASA-LEWIS		PRELIMINARY DATA		04/02/76	CADREII	REC 04/02/76 16:50:49.345		FAC SEX15	PGM C003	RDG 2822
LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 60 %				MODE = 5.0000		NO. SCANS = 4				
ENGINE TIMING = 25.00C		DEG.		BAROMETRIC PRESSURE = 29.160		RATED HP. = 160.00		HC RATIO = 2.1250		
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL				
	60.112	29.159	104.36	467.69	3.1255	14.429				
COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP				
	71.220	5.5022	44.879	42.114	36.742	6.0505				
COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT				
	67.049	2.9897	3.6414	9939.1	59.606	46.022				
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP					
	59.606	2.3877	46.780	1.0742	66.682					
ENG. COND.	F/A DRY	F/A WET	FQU. RATIO	RPM-1	RPM-2	TORQUE	BHP			
	0.078562	0.078040	1.1726	2351.3	2352.5	146.78	65.712			
WET CORRECTION FACTOR = 0.84433			EXHAUST MOLE. WT. = 27.796		EXHAUST SENSITV = 0.071971		EXHAUST FLOW RATE = 7052.2			
MEASURED CONC.	PART PER MILLION WET		PER CENT							
	HC PPM	NOX PPM	CO DRY	CO2 DRY	CO2 DRY					
	1672.3	420.32	6.4363	11.1330	0.14739					
CORRECTED CONC. TO WET BASIS			5.4343	9.3998	0.12445					
EMISSION RATE	HC	NOX	CO							
	0.42338	0.35273	27.923							
EMISSION MASS/MODE	0.042338	0.035273	2.7823							
EMISSION MASS/RATED HP	0.00026461	0.00022046	0.017390							
MODE EMIS./STD. CYCLE %	13.927	14.697	41.404							
CAL. FUEL AIR RATIO = 0.080891		MEAS. FUEL AIR RATIO = 0.078562		DIFF MEAS. & CAL. F/A PERCENT = 2.9639						
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4						
	338.04	349.35	342.64	309.39						
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2				
	937.54	-454.00	1055.0	974.66	1098.5	1099.1				
ENGINE OIL	EQILT	SOILT	OILP	MANIFOLD PRESSURE = 18.404						
	169.39	225.74	72.227							
DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.247							
	149.58	2301.0								
INDUCTION AIR	TAIRT1	TAIPT2	TAIRT1	TAIPT2						
	59.750	60.112	88.049	56.235						
ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW						
	94.244	2.5500	53.337	2210.7						
CELL TEMP. = 82.134		WFAIR TEMP = 82.969		COOLER TEMP = 51.790						



NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDEII REC 04/02/76 16:55:00.923 FAC SEX15 PGM C003 RDG 2823  
 LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 60 % MODE = 3.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.160 RATED HP. = 160.00 HC RATIO = 2.1250  
 COMP. AIR TEMP 59.960 PRESS 29.136 CFM 209.50 DRY FLOW 964.63 VAPOR FLOW 6.5515 PRESS TOTAL 14.810  
 COMP. FUEL TEMP 68.404 PRESS 5.3417 DENSITY 44.954 TURBO FLOW 78.555 FLOW FROM 77.450 FPIP 5.9148  
 COOLING AIR TEMP 62.934 IDEL-HOOD 3.0429 DEL-HOOD 3.6621 FLOW 10037. PFL-HUM 62.503 DEW-POINT 47.136  
 PFL-HUM 1 2 HUMIDITY % H2O VAPOR CORRECTED HP  
 62.503 15.888 47.542 1.0917 157.76  
 ENG. COND. F/A DRY F/A WET FOLL. RATIO PPM-1 RPM-2 TORQUE RHP  
 0.080290 0.079748 1.1984 2701.4 2704.1 293.40 150.91  
 WET CORRECTION FACTOR = 0.84437 EXHAUST MOLE. WT. = 27.657 EXHAUST DENSITY = 0.071611 EXHAUST FLOW RATE = 14643.  
 MEASURED CONC. PART PER MILLION WET PER CENT  
 HC PPM NOX PPM CO DRY CO2 DRY O2 DRY  
 1484.9 378.78 7.1524 10.7760 0.090629  
 CORRECTED CONC. TO WET BASIS 6.0392 9.0991 0.076524  
 EMISSION RATE HC NOX CO  
 0.78063 0.56004 64.203  
 EMISSION MASS/MODE 0.0039031 0.0033002 0.37102  
 EMISSION MASS/PATED HP 2.4295E-05 2.0626E-05 0.0020064  
 MODE EMISS./STD. CYCLES 1.2839 1.3751 4.7770  
 CAL. FUEL AIR RATIO = 0.082644 MEAS. FUEL AIR RATIO = 0.080290 DIFF MEAS. & CAL. F/A PERCENT = 2.9327  
 CYL TEMP DEG.F CYL-1 CYL-2 CYL-3 CYL-4  
 418.16 436.56 418.00 677.19  
 EXT GAS TEMP DEG.F EXT-1 EXT-2 EXT-3 EXT-4 SEXT-1 SEXT-2  
 1506.3 -321.25 948.87 1249.8 1314.8 1314.5  
 ENGINE OIL OILT STILT OILP MANIFOLD PRESSURE = 28.232  
 192.48 233.73 73.467  
 OYMD COND. TORQUE RPM CYL. BACK PRESSURE = 29.319  
 291.92 2632.2  
 INDUCTION AIR IAIRT1 IAIRT2 TAIRT1 TAIRT2  
 59.617 59.960 119.08 55.668  
 ORIFICE AIR TEMP DELTAP ORFP FLOW  
 84.762 1.0164 53.396 1419.3  
 CELL TEMP. = 82.979 WATER TEMP = 82.893 COOLER TEMP = 50.464

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NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDILLAC REC 04/02/76 16:58:14.873 FAC SEX15 PGM C003 RDG 2824

LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 60 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.160 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	60.321	29.181	156.38	756.40	5.0186	14.620

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	69.512	5.4083	44.924	61.295	58.560	6.0639

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	63.356	3.0025	3.6745	9963.0	59.519	46.180

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	59.519	19.692	46.444	1.0665	122.30

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.077419	0.076909	1.1555	2431.6	2433.4	260.56	120.64

WET CORRECTION F. HOR = 0.83948 EXHAUST MOLF. WT. = 27.889 EXHAUST DENSITY = 0.072212 EXHAUST FLOW RATE = 11355.

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1513.2	492.73	6.4376	11.1240	0.12091
CORRECTED CONC. TO WET BASIS			5.4042	9.3382	0.10150

	HC	NOX	CO
EMISSION RATE	0.61688	0.56581	44.552
EMISSION MASS/MODE	0.051406	0.055484	3.7126
EMISSION MASS/RATED HP	0.00032129	0.00034677	0.023204
MODE FMS./STD. CYCLE %	16.910	23.118	55.247

CAL. FUEL AIR RATIO = 0.080917 MEAS. FUEL AIR RATIO = 0.077419 DIFF MEAS. & CAL. F/A PERCENT = 4.5176

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	393.64	411.26	404.27	475.72

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1530.5	-454.00	886.32	1104.8	1250.8	1250.9

ENGINE OIL	FILT	SILT	OTLP	MANIFOLD PRESSURE = 26.134
	188.38	276.43	71.863	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.224
	262.52	2406.8	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	60.023	63.321	123.13	55.673

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	84.920	2.0258	53.386	1982.7

CELL TEMP. = 82.445 HEATER TEMP = 82.903 COOLER TEMP = 52.294

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NASA-LEWIS PPFLIMINARY DATA 04/02/76 CADDEIT REC 04/02/76 17:01:40.745 FAC SEX15 PGM C003 RDG 2825

LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 60 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.00C DEG. BAROMETRIC PRESSURE = 29.160 RATED HP = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	58.488	29.148	104.21	467.20	3.0766	14.433

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	70.101	5.5376	44.909	42.039	34.377	6.0351

COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	60.772	2.9605	3.6460	9884.6	62.272	45.645

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	62.272	0.25002	46.097	1.0585	65.924

ENG. COND.	F/A DRY	F/A WET	EQV. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.073582	0.073101	1.0982	2349.8	2350.5	145.52	65.109

WET CORRECTION FACTOR = 0.85690 EXHAUST MOLE. WT. = 28.209 EXHAUST DENSITY = 0.073039 EXHAUST FLOW RATE = 6909.4

MEASURED CONC.	PART PER MILLION WET	HC PPM	NOX PPM	CO DRY	PER CENT	CO2 DRY	CO DRY
		1243.6	963.30	3.2421	12.7220	0.22490	
CORRECTED CONC. TO WET BASIS				2.7781	10.901	0.19272	

	HC	NOX	CO
EMISSION RATE	0.30848	0.79203	13.936
EMISSION MASS/MODE	0.030848	0.079203	1.3936
EMISSION MASS/RATED HP	0.00019280	0.00049502	0.0087097
MODE EMIS./STD. CYCLE %	10.147	33.001	20.737

CAL. FUEL AIR RATIO = 0.073459 MEAS. FUEL AIR RATIO = 0.073582 DIFF MEAS. & CAL. F/A PERCENT = -0.16768

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	345.54	352.64	349.09	291.06

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1492.0	128.51	1274.3	1175.1	1151.6	1151.7

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.599
	187.19	295.90	71.271	

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.373
	142.50	2343.4	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	59.072	58.488	137.01	56.295

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	82.284	1.0286	53.290	1430.9

CELL TEMP. = 81.254 HEATED TEMP = 82.478 COOLER TEMP = 52.204

NASA-LEWIS PPFLJINARY DATA 04/02/76 CADD11 REC 04/02/75 19:21:13.770 FAC SEX15 PGM C003 RDG 2835  
 LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 60 % MODE = 3.0000 NO. STAVS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.190 RATE HP. = 150.00 HC RATIO = 2.1250  
 COMP. AIR TEMP 58.488 PRESS 29.206 CFM 209.84 DRY FLOW 967.25 VAPOR FLOW 6.1677 PRESS TOTAL 14.813  
 COMP. FUEL TEMP 69.609 PRESS 5.4149 DENSITY 44.920 TURBO FLOW 69.236 FLOW TRON 68.767 FPIP 6.0240  
 COOLING AIR TEMP 60.511 WDEL-HOOD 1.2776 DEL-HOOD 3.7550 FLOW 10460. RFL-HUM 61.906 DEW-POINT 45.490  
 REL-HUM 1 61.906 2 31.033 HUMIDITY 44.636 % H2O VAPOR CORRECTED HP 1.0250 157.67  
 ENG. COND. F/A DRY 0.071095 F/A WET 0.070645 EQU. RATIO 1.0611 RPM-1 2703.2 RPM-2 2704.9 TORQUE 294.55 RHP 151.61  
 WET CORRECTION FACTOR = 0.84709 EXHAUST MOLE WT. = 28.421 EXHAUST DENSITY = 0.073590 EXHAUST FLOW RATE = 14162.  
 MEASURED CONC. PART PER MILLION WET HC PPM 997.40 NOX PPM 1562.7 CO DRY 2.0608 PER CENT CO2 DRY 12.7940 O2 DRY 0.11520  
 CORRECTED CONC. TO WET BASIS CO DRY 2.5927 10.837 0.097662  
 EMISSION RATE HC 0.50710 NOX 2.6335 CO 26.658  
 EMISSION MASS/MODE 0.0025355 0.013168 0.13329  
 EMISSION MASS/RATED HP 1.5847E-05 8.2298E-05 0.00083306  
 MODE EMIS./STD. CYCLE % 0.83404 5.4865 1.9835  
 CAL. FUEL AIR RATIO = 0.073323 MEAS. FUEL AIR RATIO = 0.071095 DIFF MEAS. & CAL. F/A PERCENT = 3.1342  
 CYL TEMP DEG.F CYL-1 431.73 CYL-2 442.25 CYL-3 432.27 CYL-4 515.39  
 EXT GAS TEMP DEG.F EXT-1 1909.9 EXT-2 975.72 EXT-3 1192.4 EXT-4 1356.2 SFXT-1 1385.7 SEXT-2 1388.7  
 ENGINE OIL FOILT 155.28 SOILT 211.34 OILP 73.779 MANIFOLD PRESSURE = 28.189  
 DYMO COND. TORQUE 290.02 RPM 2644.8 CYL. BACK PRESSURE = 29.311  
 INDUCTION AIR TAIRT1 58.189 TAIRT2 58.488 TAIRT1 42.740 TAIRT2 55.537  
 ORIFICE AIR TEMP 62.812 DELTAP 2.0261 DREF 53.290 FLOW 1986.7  
 CELL TEMP. = 79.728 HEATER TEMP = 81.998 COOLER TEMP = 51.177

NASA-LEWIS		PPRELIMINARY DATA		04/02/76	CADDELL	REC 04/02/76 19:24:33.364		FAC SEX15	PGM C003	RDG 2836
LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 60 %				MODE = 4.0000		NO. SCANS = 5				
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.180		RATED HP. = 150.00		HC RATIO = 2.1250		
COND. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL				
	59.283	29.112	168.90	768.65	4.9910	14.633				
COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPTP				
	70.342	5.4416	44.902	56.952	54.857	5.0054				
COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT				
	61.529	3.1877	3.7999	10300.	60.513	45.640				
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP					
	60.513	16.342	45.453	1.0437	120.36					
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	RHP			
	0.071369	0.070908	1.0652	2426.7	2429.9	257.29	118.88			
WET CORRECTION FACTOR = 0.85053		EXHAUST MOLE. WT. = 28.398		EXHAUST DENSITY = 0.073528		EXHAUST FLOW RATE = 11257.				
MEASURED CONC.	PART PER MILLION WET		PER CENT		961					
	HC PPM	NOX PPM	CO DRY	CO2 DRY						
	986.90	1969.4	3.2234	12.6040	0.32255					
CORRECTED CONC. TO WET BASIS			2.7416	10.720	0.27434					
EMISSION RATE	HC	NOX	CO							
	0.39921	2.5066	22.427							
EMISSION MASS/MODE	0.033267	0.20888	1.8689							
EMISSION MASS/PATED HP	0.00020792	0.0013055	0.011681							
MODE FMS./STD. CYCLE %	10.943	87.034	27.812							
CAL. FUEL AIR RATIO = 0.073025		MEAS. FUEL AIR RATIO = 0.071369		DIFF MEAS. & CAL. F/A PERCENT = 2.3213						
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4						
	395.22	413.43	411.72	513.18						
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2				
	1213.4	277.14	985.52	1253.0	1315.7	1318.0				
ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 26.442						
	165.58	400.05	71.455							
DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.161							
	280.33	2346.5								
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2						
	58.985	59.283	154.49	55.723						
ORIFICE AIR	TEMP	DELTAP	ORFD	FLOW						
	83.251	1.0369	53.341	1435.3						
CELL TEMP. = 81.421		HEATER TEMP = 82.033		COOLER TEMP = 53.258						

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NASA-Lewis PRELIMINARY DATA 04/02/76 CADDET REC 04/02/76 19:29:32.720 FAC SEX15 PGM C003 RDG 2837  
 LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 60 % MODE = 5.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.180 RATE HP. = 160.00 HC RATIO = 2.1250  

CONB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	60.493	29.168	103.72	465.45	3.1849	14.440	
CONB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	73.076	5.5136	44.830	42.634	35.491	6.0053	
COOLING AIR	TEMP	WHEEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	62.223	3.1404	3.8234	10215.	60.241	46.561	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	60.241	0.24802	47.898	1.0999	66.597		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.076250	0.075732	1.1381	2350.6	2352.2	146.51	65.573
WET CORRECTION FACTOR = 0.84948		EXHAUST MOLE. WT. = 27.985		EXHAUST DENSITY = 0.072461		EXHAUST FLOW RATE = 6957.2	
MEASURED CONC.	PART PER MILLION WET	NOX PPM	CO DRY	PER CENT	CO2 DRY		
	1558.7	691.27	4.9348	11.8190	0.14527		
CORRECTED CONC. TO WET BASIS			4.1920	10.039	0.12341		
EMISSION RATE	HC	NOX	CO				
	0.38929	0.57230	21.173				
EMISSION MASS/MODE	0.038929	0.057230	2.1173				
EMISSION MASS/RATED HP	0.00024331	0.00035769	0.013233				
MODE EMIS./STD. CYCLE %	12.806	23.846	31.508				
CAL. FUEL AIR RATIO = 0.077544		MEAS. FUEL AIR RATIO = 0.076250		DIFF MEAS.& CAL. F/A PERCENT = 1.6972			
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	332.32	344.97	343.34	492.21			
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	1432.5	193.56	1067.7	1098.1	1129.3	1129.2	
ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.380			
	174.23	193.91	71.895				
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.225				
	149.92	2313.0					
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2			
	60.150	60.493	81.339	55.850			
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW			
	84.103	1.0475	53.365	1441.3			
CFLT TEMP. = 81.835	HEATER TEMP = 82.054		COOLER TEMP = 53.249				

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NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDEII REC 04/02/76 19:33:19.298 FAC SEX15 PGM C003 R0G 2838  
 LEANOUT 25 RTDC TO CL APP 59 DEG HUM = 60 % MODE = 3.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.180 RATED HP. = 150.00 HC RATIO = 2.1250  

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	58.397	29.150	209.78	966.91	6.5013	14.824	
COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	60.324	5.3948	44.929	69.964	69.637	5.0759	
COOLING AIR	TEMP	INFL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	61.547	3.2403	3.7545	10394.	65.499	46.896	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	65.499	52.119	47.066	1.0808	157.95		
ENG. COND.	F/A DRY	F/A WET	F/DU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.072020	0.071539	1.0749	2702.6	2705.9	294.33	151.46
WET CORRECTION FACTOR = 0.84970 EXHAUST MOLE. WT. = 28.342				EXHAUST DENSITY = 0.073383		EXHAUST FLOW RATE = 14213.	
MEASURED CONC.	PART PER MILLION WET			PPM CENT			
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	1014.7	1540.4	3.2110	12.7050	0.13181		
CORRECTED CONC. TO WET BASIS				10.795	0.11200		
EMISSION RATE	HC	NOX	CO				
	5.51777	2.6054	28.154				
EMISSION MASS/MODE	0.0025889	0.013027	0.14077				
EMISSION MASS/RATED HP	1.6180E-05	8.1418E-05	0.00087982				
MODE EMISS./STD. CYCLE	0.85160	5.4279	2.0948				
CAL. FUEL AIR RATIO = 0.073597 MEAS. FUEL AIR RATIO = 0.072020				DIFF MEAS. & CAL. F/A PERCENT = 2.1894			
CYL TEMP. DEG. F	CYL-1	CYL-2	CYL-3	CYL-4			
	421.87	435.18	427.24	331.79			
EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	1663.7	946.27	1202.3	1421.4	1390.4	1391.7	
ENGINE OIL	EOILT	SOILT	OTLP	MANIFOLD PRESSURE = 28.328			
	191.71	229.83	73.935				
DYND COND.	TORQUE	RPM	CYL. PACK PRESSURE = 29.324				
	291.01	2613.9					
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2			
	58.072	58.397	68.914	55.551			
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW			
	82.627	1.0903	53.411	1472.0			
CELL TEMP. = 80.531	HEATER TEMP = 82.067		COOLER TEMP = 51.772				



NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDII REC 04/02/76 19:35:13.067 FAC SEX15 PGM C003 RDG 2839

LEANDUIT 25 BTDC TO CL APP 59 DEG HUM = 60 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.180 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	57.475	29.178	168.52	767.01	5.0487	14.624

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIF
	69.029	5.4347	44.937	58.434	55.175	5.9778

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT
	60.682	3.0006	3.6214	9959.4	65.406	45.980

PFL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	65.406	14.737	46.076	1.0581	121.89

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.071936	0.071465	1.0737	2431.4	2433.4	260.57	120.63

WET CORRECTION FACTOR = 0.85435 EXHAUST MOLE. WT. = 28.349 EXHAUST DENSITY = 0.073402 EXHAUST FLOW RATE = 11269.

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1070.3	1871.3	3.0576	12.6940	0.29613
CORRECTED CONC. TO WET BASIS			2.6123	10.845	0.25300

	HC	NOX	CO
EMISSION RATE	0.41280	2.5096	21.373
EMISSION MASS/MODE	0.034400	0.20913	1.7811
EMISSION MASS/RATED HP	0.00021500	0.0013071	0.011132
MODE EMISS./STD. CYCLE	11.316	87.139	26.504

CAL. FUEL AIR RATIO = 0.072778 MEAS. FUEL AIR RATIO = 0.071936 DIFF MEAS. & CAL. F/A PERCENT = 1.1705

CYL TEMP. DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	398.63	421.51	415.57	601.18

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1069.3	372.62	1222.4	1376.2	1324.6	1326.7

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 26.482
	189.82	262.31	71.715	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.360
	243.96	2349.0	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	57.140	57.475	74.999	55.284

POI FICE AIR	TEMP	DELTA P	DPF2	FLOW
	81.888	2.0462	53.336	1997.7

CELL TEMP. = 79.603 HEATED TEMP = 82.081 COOLER TEMP = 52.996



NASA-LEWIS PPFLIMINARY DATA 04/02/76 CADDEII REC 04/02/76 19:39:47.962 FAC SEX15 PGM C003 RDG 2840

LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 60 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.180 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.949	29.161	102.75	460.75	3.0322	14.431

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	71.676	5.5286	44.867	41.837	36.295	5.0129

COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	61.466	2.8307	3.5013	9638.6	61.204	45.625

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	61.204	6.0446	46.067	1.0578	65.638

ENG. COND.	F/A DRY	F/A WET	EQH. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.078773	0.078258	1.1757	2349.5	2350.3	144.82	64.788

WET CORRECTION FACTOR = 0.86037 EXHAUST MOLE. WT. = 27.779 EXHAUST DENSITY = 0.071927 EXHAUST FLOW RATE = 6952.6

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1521.4	727.07	4.9482	11.8640	0.13719
CORRECTED CONC. TO WET BASIS			4.2573	10.208	0.11804

	HC	NOX	CO
EMISSION RATE	0.37975	0.60155	21.489
EMISSION MASS/MODE	0.037975	0.060155	2.1489
EMISSION MASS/RATED HP	0.00023734	0.00037597	0.013430
MODE EMIS./STD. CYCLE %	12.492	25.064	31.977

CAL. FUEL AIR RATIO = 0.077530 MEAS. FUEL AIR RATIO = 0.078773 DIFF MEAS. & CAL. F/A PERCENT = -1.5775

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	341.86	351.86	351.69	439.89

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1603.9	315.30	1120.0	1165.5	1148.8	1148.2

ENGINE OIL	FOILT	SOILT	CILT	MANIFOLD PRESSURE = 18.419
	187.33	214.44	71.307	

DYNO COND.	TORQUE	PPH	CYL. PACK PRESSURE = 29.314
	140.68	2298.9	

INDUCTION AIR	TAIPT1	TAIPT2	TAIRT1	TAIRT2
	58.560	58.949	77.861	56.107

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	82.442	1.0245	53.362	1427.8

CEIL TEMP. = 80.864 HEATER TEMP = 82.074 COOLER TEMP = 53.888

NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDELL REC 04/02/76 19:46:43.818 FAC SEX15 PGM C003 R0G 2841

LFANOUT 25 BTDC TO CL APP 59 DEG HUM = 60 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.180 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.283	29.196	207.99	957.66	6.3912	14.807

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	70.270	5.4182	44.904	67.059	65.848	6.0138

COOLING AIR	TEMP	UNEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	62.412	2.9912	3.6383	9941.9	62.918	46.571

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	62.918	24.378	46.716	1.0728	155.16

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.068759	0.068303	1.0263	2699.2	2701.7	289.74	148.91

WET CORRECTION FACTOR = 0.85149 EXHAUST MOLE WT. = 28.558 EXHAUST DENSITY = 0.073942 EXHAUST FLOW RATE = 13928.

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	798.08	13.3140
NOX PPM	2321.8	0.19382
CO DRY	1.8358	0.15652
CORRECTED CONC. TO WET BASIS	1.5632	

EMISSION RATE	HC	NOX	CO
EMISSION MASS/MODE	0.39906	3.8484	15.807
EMISSION MASS/RATED HP	0.0019953	0.019242	0.079036
MODE EMIS./STD. CYCLE %	1.2471E-05	0.00012026	0.00049397
	0.65635	8.0174	1.1761

CAL. FUEL AIR RATIO = 0.070497 MEAS. FUEL AIR RATIO = 0.068759 DIFF MEAS. & CAL. F/A PERCENT = 2.5284

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	448.81	452.68	453.57	678.75

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1146.1	1189.0	1487.3	1447.8	1445.6	1446.7

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE
	188.76	197.57	73.167	28.377

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE
	297.19	2662.6	29.322

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	58.949	59.283	82.351	55.674

ORIFICE AIR	TEMP	DELTAP	ORFID	FLOW
	83.515	3.9947	53.473	2750.7

CELL TEMP. = 82.697 HEATED TEMP = 82.102 COOLER TEMP = 50.987

NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDEII REC 04/02/76 19:49:34.077 FAC SEX15 PGM C003 RDG 2842  
 LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 60 % MODE = 4.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.190 RATED HP = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	59.518	29.194	173.63	791.96	5.3388	14.658	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	71.518	5.4386	44.871	54.620	53.771	6.0813	
COOLING AIR	TEMP	UPEL-HOOD	DEL-HOOD	FLOW	PEL-HUM	DEW-POINT	
	52.898	2.9436	3.5566	9852.9	62.381	46.666	
PEL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	52.381	35.091	47.189	1.0836	120.82		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.067895	0.067442	1.0134	2434.1	2435.9	257.34	119.27

 WET CORRECTION FACTOR = 0.84999 EXHAUST MOLE WT. = 29.525 EXHAUST DENSITY = 0.074116 EXHAUST FLOW RATE = 11483.  

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM NOX PPM CO DRY CO2 DRY O2 DRY	
	721.77 2158.5 2.3884 12.7520 0.64812	
CORRECTED CONC. TO WET BASIS		
	CO DRY	
	2.0301 10.839 0.55090	

EMISSION RATE	HC	NOX	CO
	0.29754	2.3496	16.925
EMISSION MASS/MODE	0.024795	0.24580	1.4104
EMISSION MASS/PATED HP	0.00015497	0.0015362	0.0088149
MODE EMIS./STD. CYCLE %	8.1563	102.42	20.988

 CAL. FUEL AIR RATIO = 0.070192 MEAS. FUEL AIR RATIO = 0.067896 DIFF MEAS. & CAL. F/A PERCENT = 3.3806  

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4		
	414.60	427.88	418.82	555.57		
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1317.3	663.79	1146.7	1401.0	1362.9	1353.9
ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 27.125		
	187.44	177.64	71.751			
DYNO COND.	TORQUE	RPM	CYL BACK PRESSURE = 29.354			
	255.27	2342.1				
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2		
	59.139	59.518	85.332	55.225		
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW		
	83.927	1.0499	53.358	1443.2		
CFL TEMP. = 83.216	HEATER TEMP = 82.130	COOLER TEMP = 52.916				

NASA-Lewis		PRELIMINARY DATA		04/02/76	CADDEII	REC 04/02/76 19:53:14.825	FAC SEX15	PGM C003	RDG 2843
LEANOUT: 25 BTDC TO CL APP 59 DEG HUM = 60 %				MODE = 5.0000		NO. SCANS = 5			
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.190		RATED HP. = 160.00		HC RATIO = 2.1250	
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL			
	60.962	29.190	103.87	466.39	3.1526	14.446			
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP			
	74.631	5.5358	44.789	41.415	34.446	6.0516			
COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT			
	63.689	2.8899	3.4199	9751.6	58.556	46.351			
RFL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP					
	58.556	0.29803	47.316	1.0865		67.296			
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	RHP		
	0.073857	0.073361	1.1023	2352.1	2354.0	147.91	66.244		
WET CORRECTION FACTOR = 0.85789		EXHAUST MOLE. WT. = 28.185		EXHAUST DENSITY = 0.072979		EXHAUST FLOW RATE = 6906.0			
MEASURED CONC.	PART PER MILLION WET		PER CENT						
	HC PPM	NOX PPM	CO DRY	CO2 DRY	NO DRY				
	1282.4	1141.1	3.2338	12.6630	0.18524				
CORRECTED CONC. TO WET BASIS									
			2.7742	10.863	0.15891				
	HC	NOX	CO						
EMISSION RATE	0.31795	0.93778	13.909						
EMISSION MASS/MODE	0.031795	0.093778	1.3909						
EMISSION MASS/RATED HP	0.00019872	0.00058611	0.0086933						
MODE EMISS./STD. CYCLE %	10.459	39.074	20.698						
CAL. FUEL AIR RATIO = 0.073621		MEAS. FUEL AIR RATIO = 0.073857		DIFF MEAS. & CAL. F/A PERCENT = -0.31894					
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4					
	349.63	357.04	359.03	422.35					
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SFXT-1	SEXT-2			
	882.27	698.54	1358.2	1203.6	1190.5	1190.4			
ENGINE OIL	EQILT	SOILT	OTLP	MANIFOLD PRESSURE = 18.626					
	187.59	198.28	71.379						
DYNO COND.	TORQUE	RP	CYL. BACK PRESSURE = 29.265						
	138.46	2302.8							
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2					
	60.538	60.962	106.83	55.819					
ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW					
	84.516	0.10571	53.422	364.30					
CELL TEMP. = 83.067		HEATER TEMP = 82.123		COOLER TEMP = 52.969					

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NASA-LEWIS PRELIMINARY DATA C4/02/76 CADDEII REC 04/02/76 19:56:45.780 FAC SEX15 PGM C003 RDG 2844

LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 60 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.180 RATE HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	57.475	29.151	209.40	964.72	6.5806	14.817

COMB. FUEL	TEMP	PRESS	DENSITY	TIPRO FLOW	FLOW TRON	FPIF
	52.333	5.4134	44.929	67.741	66.382	5.9949

COOLING AIR	TEMP	INDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	60.890	2.9904	3.5760	9940.4	68.646	47.261

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	68.646	38.202	47.749	1.0965	155.37

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.068809	0.068343	1.0270	2705.2	2707.3	289.46	149.10

WET CORRECTION FACTOR = 0.85166 EXHAUST MOLE. WT. = 28.553 EXHAUST DENSITY = 0.073931 EXHAUST FLOW RATE = 14035.

MEASURED CONC.	PART PER MILLION WFT	NOX PPM	CO DRY	PER CENT CO2 DRY	O2 DRY
	802.88	2302.8	1.8203	13.3150	0.17744
CORRECTED CONC. TO WET BASIS			1.5503	11.340	0.15112

	HC	NOX	CO
EMISSION RATE	0.40456	3.9463	15.797
EMISSION MASS/MODE	0.0020228	0.019231	0.078985
EMISSION MASS/RATED HP	1.2642E-05	0.00012020	0.00049365
MODE EMIS./STD. CYCLE %	0.66539	8.0131	1.1754

CAL. FUEL AIR RATIO = 0.070490 MEAS. FUEL AIR RATIO = 0.068809 DIFF MEAS. & CAL. F/A PERCENT = 2.4423

CYL TEMP. DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	435.85	440.83	444.60	231.18

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	931.45	1218.9	1603.1	1490.8	1429.6	1429.7

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.310
	188.36	237.01	73.615	

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.356
	296.11	2617.3	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	57.149	57.475	121.14	55.575

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	81.800	2.0298	53.345	1990.3

CELL TEMP. = 81.095 HEATER TEMP = 82.123 COOLER TEMP = 51.402

NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDEII REC 04/02/76 20:00:02.941 FAC SEX15 PGM C003 RDG 2845  
 LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 60 % MODE = 4.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.180 PATED HP. = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	57.900	29.136	175.43	799.76	5.5141	14.655	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	70.360	5.4329	44.902	56.736	54.803	6.0141	
COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	61.313	3.0211	3.6964	9997.4	67.577	47.251	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	67.577	26.451	48.263	1.1083	121.31		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.068525	0.068056	1.0228	2432.7	2434.4	258.92	119.93
WET CORRECTION FACTOR = 0.85319				EXHAUST MOL. WT. = 28.577		EXHAUST DENSITY = 0.073992	
				EXHAUST FLOW RATE = 11623.			
MEASURED CONC.	PART PER MILLION WET			PER CENT			
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	631.96	2042.1	2.5415	12.6310	0.75081		
CORRECTED CONC. TO WET BASIS				10.777	0.64059		
	HC	NOX	CO				
EMISSION RATE	0.26371	2.3247	18.299				
EMISSION MASS/MODE	0.021976	0.23539	1.5249				
EMISSION MASS/RATED HP	0.00013735	0.0014712	0.0095307				
MODE EMISS./STD. CYCLE %	7.2290	98.080	22.692				
CAL. FUEL AIR RATIO = 0.070146				MEAS. FUEL AIR RATIO = 0.068525		DIFF MEAS. & CAL. F/A PERCENT = 2.3645	
CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4			
	407.32	421.56	411.43	655.39			
EXT GAS TEMP DEG. F	FXT-1	FXT-2	FXT-3	FXT-4	SXT-1	SXT-2	
	1007.6	589.75	1190.1	1322.2	1355.0	1356.5	
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 27.187			
	187.41	293.38	72.071				
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.332				
	235.14	2363.2					
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2			
	57.493	57.900	116.54	55.268			
ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW			
	82.354	0.001009	53.372	325.33			
CELL TEMP. = 81.712		HEATED TEMP = 82.123		COOL ER TEMP = 53.294			

NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDEII REC 04/02/76 20:03:09.771 FAC SEX15 PGM C003 RDG 2846

LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 60 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.190 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.256	29.188	104.04	467.09	3.1242	14.449

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	73.227	5.5424	44.826	40.828	35.329	6.0402

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	PFL-HUM	DEW-POINT
	61.917	3.0114	3.4913	9979.4	61.589	46.081

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	61.589	8.5749	46.820	1.0752	65.641

ENG. COND.	F/A DRY	F/A WET	EQV. RATIO	PPM-1	RPM-2	TORQUE	BHP
	0.075635	0.075133	1.1289	2351.9	2354.3	144.60	64.753

WET CORRECTION FACTOR = 0.86805 EXHAUST MOLE. WT. = 28.036 EXHAUST DENSITY = 0.072593 EXHAUST FLOW RATE = 6964.0

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	1209.5	1196.1	3.0909	12.6980	0.19524
CORRECTED CONC. TO WET BASIS			2.6831	11.022	0.16948

	HC	NOX	CO
EMISSION RATE	0.30239	0.39125	13.565
EMISSION MASS/MODE	0.030239	0.099124	1.3565
EMISSION MASS/RATED HP	0.00018899	0.00061953	0.0084783
MODE EMIS./STD. CYCLE %	9.9470	41.302	20.186

CAL. FUEL AIR RATIO = 0.073260 MEAS. FUEL AIR RATIO = 0.075636 DIFF MEAS. & CAL. F/A PERCENT = -3.1415

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	349.66	356.13	340.11	475.52

EXT GAS TEMP DEG. F	FXT-1	FXT-2	FXT-3	FXT-4	SEXT-1	SEXT-2
	1528.2	807.68	1481.6	1247.9	1193.4	1193.4

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.632
	187.65	273.14	71.199	

DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.310
	148.15	2310.7	

INDUCTION AIR	TAIPT1	TAIRT2	TAIRT1	TAIRT2
	59.849	59.256	125.42	56.035

ORIFICE AIR	TEMP	DELTAP	OPFP	FLOW
	82.812	2.0356	53.413	1991.1

CELL TEMP. = 81.958 HEATER TEMP = 82.144 COOLER TEMP = 54.221



NASA-LEWIS	PRELIMINARY DATA	04/02/76	CADDEII	REC 04/02/76 20:07:09.663	FAC SEX15	PGM C003	RDG 2847
LEANOUT 25 RTDC TR CL APP 59 DEG HUM = 60 %	MODE = 5.0000	NO. SCANS = 5					
ENGINE TIMING = 25.000	DEG.	BAROMETRIC PRESSURE = 29.190	RATED HP. = 160.00	HC RATIO = 2.1250			
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	59.744	29.181	102.76	461.48	3.1212	14.448	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	73.414	5.5193	44.821	44.920	37.672	6.0693	
COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	62.421	3.0742	3.5712	10095.	61.195	46.371	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	61.195	20.578	47.344	1.0872	65.686		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.081633	0.081085	1.2184	2350.0	2352.1	144.71	64.749
WET CORRECTION FACTOR = 0.85431	EXHAUST MOL. WT. = 27.551	EXHAUST DENSITY = 0.071336	EXHAUST FLOW RATE = 7040.9				
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	NO DRY		
	1741.3	434.72	6.6517	10.9560	0.077828		
CORRECTED CONC. TO WET BASIS			5.6826	9.3506	0.066489		
EMISSION RATE	HC	NOX	CO				
	0.44014	0.36424	29.048				
EMISSION MASS/MODE	0.044014	0.036424	2.9048				
EMISSION MASS/RATED HP	0.00027509	0.00022765	0.018155				
MODE EMIS./STD. CYCLE %	14.478	15.177	43.226				
CAL. FUEL AIR RATIO = 0.081738	MEAS. FUEL AIR RATIO = 0.081633	DIFF MEAS. & CAL. F/A PERCENT = 0.12887					
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	355.66	363.43	364.26	377.45			
EXT GAS TEMP DEG.F	FXT-1	FXT-2	FXT-3	FXT-4	SEXT-1	SEXT-2	
	1255.5	509.64	1152.3	1216.2	1156.3	1156.4	
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.369			
	197.77	265.56	71.311				
DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.291				
	139.85	2296.1					
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2			
	59.337	59.744	147.23	55.805			
ORIFICE AIR	TEMP	DELTAP	ORIF	FLOW			
	83.409	1.9718	53.368	1960.3			
CELL TEMP. = 81.085	HEATER TEMP = 82.158	COOLER TEMP = 52.546					

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NASA-LEWIS		PRELIMINARY DATA		04/02/76	CADDEII	REC 04/02/76 20:15:43.271	FAC SEX15	PGM C003	RDG 2848
LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 60 %				MODE = 3.0000		NO. SCANS = 5			
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.190		RATED HP = 160.00		HC RATIO = 2.1250	
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL			
	59.644	29.213	209.61	966.21	6.3004	14.814			
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP			
	71.661	5.3846	44.867	76.725	73.450	6.0087			
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT			
	63.221	3.1448	3.7091	10223.	60.730	46.076			
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP				
	60.730	4.0564	45.645	1.0482	158.73				
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP		
	0.076019	0.075527	1.1345	2701.6	2704.1	296.36	152.45		
WET CORRECTION FACTOR = 0.85095		EXHAUST MOLE WT. = 28.005		EXHAUST DENSITY = 0.072511		EXHAUST FLOW RATE = 14424.			
MEASURED CONC.	PART PER MILLION WET		PER CENT						
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY				
	1184.1	863.58	4.7107	11.9380	0.067067				
CORRECTED CONC. TO WET BASIS			4.0086	10.158	0.057070				
EMISSION RATE	HC	NOX	CO						
	0.61320	1.4824	41.980						
EMISSION MASS/MODE	0.0030660	0.0074120	0.20990						
EMISSION MASS/RATED HP	1.9162E-05	4.5325E-05	0.0013119						
MODE EMIS./STD. CYCLE %	1.0085	3.0893	3.1235						
CAL. FUEL AIR RATIO = 0.077117		MEAS. FUEL AIR RATIO = 0.076019		DIFF MEAS. & CAL. F/A PERCENT = 1.4440					
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4					
	423.52	435.71	426.58	361.84					
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2			
	1240.7	773.88	1189.3	1370.6	1355.8	1357.5			
ENGINE OIL	FILT	SOILT	OILP	MANIFOLD PRESSURE = 28.253					
	178.08	238.60	73.819						
DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.350						
	295.56	2641.9							
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2					
	59.310	59.644	109.30	55.440					
ORFICE AIR	TEMP	DELTA P	ORFP	FLOW					
	83.989	0.088900	53.321	318.96					
CELL TEMP. = 82.539		HEATED TEMP = 82.178		COOLER TEMP = 53.231					

NASA-LEWIS

PRELIMINARY DATA

04/02/76

CADDET

REC 04/02/76 20:18:24.217

FAC SEX15

PGM C003

RDG 2849

LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 60 %

MODE = 4.0000

NO. SCANS = 5

ENGINE TIMING = 25.000

DEG.

BAROMETRIC PRESSURE = 29.200

RATED HP. = .160.00

HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	57.520	29.218	166.66	759.37	5.0130	14.643

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	69.860	5.4311	44.915	57.828	57.618	6.0249

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	60.754	3.1501	3.5410	10233.	65.572	46.091

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	65.572	12.337	46.211	1.0612	121.17

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.075876	0.075379	1.1325	2430.9	2433.4	259.07	119.91

WET CORRECTION FACTOR = 0.85516

EXHAUST MOLE WT. = 28.016

EXHAUST DENSITY = 0.072541

EXHAUST FLOW RATE = 11331.

MEASURED CONC.	PART PER MILLION WET			PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1217.0	1349.6	4.3905	12.0820	0.14641
CORRECTED CONC. TO 1FT BASIS			3.7460	10.332	0.12521

EMISSION RATE	HC	NOX	CO
	0.49508	1.8199	30.817
EMISSION MASS/MODE	0.041257	0.15166	2.5601
EMISSION MASS/RATED HP	0.00025785	0.00094786	0.016051
MODE EMIS./STD. CYCLE %	13.571	63.191	38.216

CAL. FUEL AIR RATIO = 0.076158

MEAS. FUEL AIR RATIO = 0.075876

DIFF MEAS. &amp; CAL. F/A PERCENT = 0.37204

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	396.56	415.69	417.26	710.04

EXT GAS TEMP DEG.F	FXT-1	FXT-2	FXT-3	FXT-4	SEXT-1	SEXT-2
	753.25	282.02	1229.1	1371.5	1294.5	1296.5

ENGINE OIL	EQILT	SOILT	OILT	MANIFOLD PRESSURE = 26.432
	187.06	252.81	72.163	

DYNO COND.	TORQUE	RPM	CYL BACK PRESSURE = 29.248
	264.14	2388.4	

INDUCTION AIR	TAIPT1	TAIPT2	TAIRT1	TAIRT2
	57.176	57.520	93.850	55.357

ORIFICE AIR	TEMP	DELTA P	DPFP	FLOW
	81.861	1.9935	53.393	1973.3

CFLT TEMP. = 80.962

HEATED TEMP = 82.185

COOLER TEMP = 53.078

NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDEII REC 04/02/76 20:21:13.886 FAC SEX15 PGM C003 R0G 2850

LEANOUT 25 RTDC TO CL APP 59 DEG HUM = 60 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BARMETRIC PRESSURE = 29.200 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	58.081	29.156	209.16	964.38	6.4748	14.831

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	68.904	5.3783	44.941	75.723	72.982	5.9955

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT
	61.061	3.1423	3.7254	10219.	66.184	46.871

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	66.184	36.458	46.998	1.0792	159.15

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	RHP
	0.075678	0.075173	1.1295	2705.1	2707.6	296.50	152.71

WET CORRECTION FACTOR = 0.84696 EXHAUST MOLE. WT. = 28.033 EXHAUST DENSITY = 0.072584 EXHAUST FLOW RATE = 14381.

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT CO2 DRY	O2 DRY
	HC PPM	NOX PPM			
	1142.9	736.57	4.8628	11.9280	0.043944
CORRECTED CONC. TO WET BASIS			4.1186	10.102	0.037219

	HC	NOX	CO
EMISSION RATE	0.59006	1.2605	43.001
EMISSION MASS/MODE	0.0029503	0.0063026	0.21500
EMISSION MASS/PATED HP	1.8439E-05	3.9392E-05	0.0013438
MODE EMIS./STD. CYCLE %	0.97050	2.6261	3.1995

CAL. FUEL AIR RATIO = 0.077459 MEAS. FUEL AIR RATIO = 0.075678 DIFF MEAS. & CAL. F/A PERCENT = 2.3530

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	433.10	451.06	436.58	434.72

EXT GAS TEMP DEG.F	FXT-1	FXT-2	FXT-3	FXT-4	SEXT-1	SEXT-2
	1339.4	745.86	1229.9	1330.4	1374.9	1376.2

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.383
	188.90	207.26	73.367	

DYN COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.366
	296.95	2646.1	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	57.701	58.081	157.44	55.761

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	82.152	1.0305	53.339	1432.3

CELL TEMP. = 81.615 HEATER TEMP = 82.185 COOLER TEMP = 52.600

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NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDEIT REC 04/02/76 20:25:28.835 FAC SEX15 PGM C003 RDG 2851

LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 60 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.200 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	58.615	29.205	166.38	757.00	5.2342	14.530

COMP. FUEL	TEMP	PRESS	DENSITY	TUPRO FLOW	FLOW TRON	FPIP
	70.645	5.4281	44.894	61.943	57.951	6.0075

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	61.890	3.0537	3.6380	10057.	65.942	47.281

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	65.942	23.988	48.401	1.1114 120.21

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.076554	0.076028	1.1426	2433.6	2435.2	256.27	118.75

WET CORRECTION FACTOR = 0.85882 EXHAUST MOLE. WT. = 27.950 EXHAUST DENSITY = 0.072396 EXHAUST FLOW RATE = 11329.

MEASURED CONC.	PART PER MILLION WET	CO DRY	PER CENT	CO2 DRY	O2 DRY
	HC PPM	NOX PPM			
	1190.3	1343.8	4.2595	12.1840	0.14587
CORRECTED CONC. TO WET BASIS			3.6582	10.464	0.12528

EMISSION RATE	HC	NOX	CO
	0.48005	1.8117	30.088
EMISSION MASS/MODE	0.040004	0.15097	2.5073
EMISSION MASS/RATED HP	0.00025003	0.00094359	0.015671
MODE EMIS./STD. CYCLE	13.159	62.906	37.312

CAL. FUEL AIR RATIO = 0.075850 MEAS. FUEL AIR RATIO = 0.076554 DIFF MEAS. & CAL. F/A PERCENT = -0.91893

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	395.10	408.11	419.47	613.99

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	625.24	289.03	1260.2	1337.3	1299.5	1301.0

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 26.318
	197.33	259.75	71.891	

DYNO COMP.	TORQUE	RPM	CYL. BACK PRESSURE = 29.262
	261.80	2328.5	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	58.235	58.615	123.89	55.405

ORIFICE AIR	TEMP	DELTAP	ORIF	FLOW
	82.926	2.0508	53.412	1997.9

CELL TEMP. = 82.284 HEATER TEMP = 82.185 COOLER TEMP = 53.465

ORIGINAL PAGE IS  
OF POOR QUALITY

NASA-LF-115 PRELIMINARY DATA 04/02/76 CANDEFI REC 04/02/76 20:33:17.330 FAC SFX15 PGM C003 RDG 2852

LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 60.1% MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.200 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.409	29.181	102.01	458.73	3.1296	14.450

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	73.742	5.5208	44.812	41.350	36.451	6.0927

COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	61.944	2.9917	3.5812	9942.9	62.470	46.601

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	62.470	9.5009	47.756	1.0966	66.351

ENG. COND.	F/A DRY	F/A WET	EQ. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.079460	0.078921	1.1860	2350.0	2351.0	146.22	65.426

WET CORRECTION FACTOR = 0.84950 EXHAUST MOLE. WT. = 27.724 EXHAUST DENSITY = 0.071783 EXHAUST FLOW RATE = 6941.8

MEASURED CONC.	HC PPM	NOX PPM	CO DRY	PER CENT	CO2 DRY	O2 DRY
	1664.6	481.55	6.2705	11.1660	0.11919	
CORRECTED CONC. TO WET BASIS			5.3267	9.4855	0.10125	

	HC	NOX	CO
EMISSION RATE	0.41483	0.39780	26.846
EMISSION MASS/MODE	0.041483	0.039780	2.6846
EMISSION MASS/PATED HP	0.00025927	0.00024862	0.016778
MODE EMISS./STD. CYCLE %	13.646	16.575	39.949

CAL. FUEL AIR RATIO = 0.080657 MEAS. FUEL AIR RATIO = 0.079460 DIFF MEAS. & CAL. F/A PERCENT = 1.5062

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	330.79	341.90	345.51	593.41

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1361.7	233.02	1283.5	1066.0	1110.8	1109.6

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.236
	186.84	223.09	71.443	

DYNO COND.	TORQUE	PPM	CYL. BACK PRESSURE = 29.373
	150.93	2306.4	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	58.994	59.409	121.27	55.126

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	83.673	2.0053	53.455	1975.5

CELL TEMP. = 82.644 HEATER TEMP = 82.171 COOLER TEMP = 52.465

NASA-Lewis PRELIMINARY DATA 04/02/76 CADDELL REC 04/02/76 20:56:12.647 FAC SEX15 PGM C003 RDG 2857  
 LEANOUT 25 BTDC-1 & T 59 DEG HUM = 60 % 1 1/2 T CLOS MODF = 1.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BARMETRIC PRESSURE = 29.200 RATED HP. = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	61.637	29.198	11.082	45.532	0.32857	14.341	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	78.395	5.8233	44.590	3.9651	3.4143	6.1569	
COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	66.471	0.00027676	0.55569	2226.4	55.707	45.665	
REL-HUM	1	2	HUMIDITY	H2O VAPOR	CORRECTED HP		
	55.707	44.756	46.434	1.0663	1.1872		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.068931	0.068477	1.0288	613.26	616.62	10.043	1.1727
WET CORRECTION FACTOR = 0.86530		EXHAUST MOLE. WT. = 28.543		EXHAUST DENSITY = 0.073904		EXHAUST FLOW RATE = 720.87	
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	17612.	33.713	1.2542	10.9650	2.3267		
CORRECTED CONC. TO WET BASIS			1.0953	9.4879	2.0133		
EMISSION RATE	HC	NOX	CO				
	0.45580	0.0028921	0.56799				
EMISSION MASS/MODE	0.0075967	4.8201E-05	0.0094665				
EMISSION MASS/RATED HP	4.7480E-05	3.0126E-07	5.9166E-05				
MODE EMIS./STD. CYCLE %	2.4980	0.020084	0.14087				
CAL. FUEL AIR RATIO = 0.072304		MEAS. FUEL AIR RATIO = 0.068931		DIFF MEAS. & CAL. F/A PERCENT = 4.8931			
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	262.99	290.92	277.44	402.64			
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	1202.7	-454.00	228.65	745.12	543.90	536.31	
ENGINE OIL	ERTLT	STILT	DILT	MANIFOLD PRESSURE = 11.873			
	161.25	340.19	46.241				
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.354				
	4.3636	604.38					
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2			
	60.808	61.637	68.626	54.480			
ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW			
	84.323	0.082708	53.471	301.15			
CELL TEMP. = 79.826		HEATER TEMP = 82.185		COOLER TEMP = 40.552			



NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDEII REC 04/02/76 20:58:42.291 FAC SEX15 PGM C003 RDG 2858

LEANOUT 25 BTDC I & T 59 DEG HUM = 60 % 1 1/2 T CLNS MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.190 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	61.538	29.190	17.552	78.746	0.52697	14.338

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	78.527	5.7792	44.587	7.4218	5.8806	6.1314

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	66.766	0.012454	0.62630	2287.7	56.382	45.891

REL-HUM	1	2	HUMIDITY	H2O VAPOR CORRECTED HP
	56.382	7.6628	46.844	1.0757

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.074678	0.074181	1.1145	1202.9	1204.9	5.0172	1.1491

WET CORRECTION FACTOR = 0.84685 EXHAUST MOLE WT. = 28.116 EXHAUST DENSITY = 0.072800 EXHAUST FLOW RATE = 1169.7

MEASURED CONC.	PART PER MILLION WET	HC PPM	NOX PPM	CO DRY	PER CENT	CO2 DRY	O2 DRY
		2164.3	62.958	4.2415	12.2310	0.11897	0.10075

CORRECTED CONC. TO WET BASIS

EMISSION RATE	HC	NOX	CO
	0.090884	0.0087634	3.0503
EMISSION MASS/MODE	0.016662	0.0016066	0.55921
EMISSION MASS/RATED HP	0.00010414	1.0041E-05	0.0034951
MODE EMISS./STD. CYCLE	5.4809	0.66942	8.3216

CAL. FUEL AIR RATIO = 0.075418 MFAS. FUEL AIR RATIO = 0.074678 DIFF MEAS. & CAL. F/A PERCENT = 2.3301

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	291.80	316.13	305.90	358.72

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SFXT-1	SEXT-2
	1957.0	-454.00	219.26	750.82	560.54	552.49

ENGINE OIL	ETILT	SOILT	OILP	MANIFOLD PRESSURE
	161.53	353.34	56.730	7.9322

DYNO COND.	TORQUE	RPM	CYL. PACK PRESSURE
	4.0108	1210.5	29.267

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	60.853	61.538	49.245	55.354

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	84.595	3.0081	53.386	2390.3

CELL TEMP. = 80.681 HEATER TEMP = P2.164 COOLER TEMP = 51.582

NASA-LEWIS PRELIMINARY DATA 04/02/76 CADRE11 REC 04/02/76 21:03:18.548 FAC SEX15 PGM C003 RDG 2859

LEANOUT 25 BTDC 1 & T 59 DEG HUM = 60 % 1 1/2 T CLOS MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.200 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	58.669	29.198	17.486	78.146	0.52313	14.341

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	76.803	5.7750	44.732	7.6969	6.0276	6.1323

COOLING AIR	TEMP	INDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	63.518	-0.014115	0.60305	0.00000	62.482	45.906

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	62.482	22.988	46.860	1.0761	1.2917

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	PPM-2	TORQUE	BHP
	0.077133	0.076620	1.1512	1205.0	1206.8	5.5755	1.2792

WET CORRECTION FACTOR = 0.85773 EXHAUST MOLE. WT. = 27.913 EXHAUST DENSITY = 0.072273 EXHAUST FLOW RATE = 1171.9

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	2114.0	63.196	4.3260	12.1450	0.14837
CORRECTED CONC. TO WET BASIS			3.7106	10.417	0.12727

	HC	NOX	CO
EMISSION RATE	0.088939	0.0088131	3.1569
EMISSION MASS/MODE	0.0044469	0.00044065	0.15785
EMISSION MASS/RATED HP	2.7793E-05	2.7541E-06	0.00098655
MODE EVIS./STD. CYCLE %	1.4628	0.18361	2.3489

CAL. FUEL AIR RATIO = 0.076487 MEAS. FUEL AIR RATIO = 0.077133 DIFF MEAS. & CAL. F/A PERCENT = -0.83689

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	285.37	302.83	293.47	388.56

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1241.4	-454.00	80.294	685.86	513.37	505.81

ENGINE OIL	FOILT	SOILT	OIL2	MANIFOLD PRESSURE
	159.65	280.78	57.078	7.9542

DYNO COND.	TOPOUE	RPM	CYL. BACK PRESSURE
	5.1413	1199.0	29.222

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	57.964	58.669	110.19	54.539

DRIFTFE AIR	TEMP	DELTA P	DPFP	FLOW
	82.143	1.0182	53.668	1423.9

CELL TEMP. = 77.537 HEATER TEMP = 82.164 COOLER TEMP = 47.287



NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDEIT REC 04/02/76 21:06:10.720 FAC SEX15 PGM C003 RDG 2860

LEANOUT 25 BTDC 1-2 T 59 DEG HUM = 60 \* 1 1/2 T CLOS MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.200 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.671	29.199	10.983	9.074	0.32784	14.343

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	76.484	5.8227	44.740	3.9678	3.3303	6.1434

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	64.327	-0.0016605	0.51754	0.00000	60.168	45.855

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	60.168	21.026	46.763	1.0738	0.35486

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	PPM-2	TORQUE	RHP
	0.067864	0.067413	1.0129	601.32	603.72	3.0670	0.35115

WET CORRECTION FACTOR = 0.88899 EXHAUST MOLE. WT. = 28.627 EXHAUST DENSITY = 0.074122 EXHAUST FLOW RATE = 711.43

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	16017	34.243	1.4072	11.1200	4.0955
CORRECTED CONC. TO WET BASIS			1.2509	9.8854	3.6408

	HC	NOX	CO
EMISSION RATE	0.40909	0.0028990	0.64610
EMISSION MASS/MODE	0.0068182	4.8317E-05	0.010768
EMISSION MASS/RATED HP	4.2614E-05	3.0198E-07	6.7302E-05
MODE EMIS./STD. CYCLE %	2.2428	0.020132	0.16024

CAL. FUEL AIR RATIO = 0.065731 MEAS. FUEL AIR RATIO = 0.067864 DIFF MEAS. & CAL. F/A PERCENT = -3.1418

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	265.94	298.03	283.97	402.48

FXT GAS TEMP DEG.F	FXT-1	FXT-2	FXT-3	FXT-4	SEXT-1	SEXT-2
	1315.0	-454.00	154.51	699.94	510.07	504.80

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 12.061
	159.44	295.21	46.101	

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.134
	2.9091	599.58	

INDUCTION AIR	IAIPT1	IAIPT2	TAIRT1	TAIRT2
	58.822	59.671	61.141	54.725

ORIFICE AIR	TEMP	DELTAP	DRFP	FLOW
	82.759	2.0539	54.146	1999.6

CELL TEMP. = 77.679

HEATER TEMP = 82.178

COOLER TEMP = 41.050

NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDEII RFC 04/02/76 21:11:13.158 FAC SFX15 PGM C003 RDG 2861

LEANOUT 25 BTDC 1-6 T-59 DEG HUM = 60 3/4 T-CLOSED MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.200 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	60.502	29.201	10.059	44.999	0.30201	14.340

COMB. FUEL	TEMP	PRESS	DENSITY	TURB FLOW	FLOW TRON	FPIP
	77.484	5.7951	44.714	3.9638	3.9394	6.1437

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	64.668	-0.0041514	0.63793	0.00000	58.671	45.971

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	58.671	15.182	46.980	1.0788	0.40557

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.087544	0.086960	1.3066	597.42	598.52	3.5254	0.40101

WET CORRECTION FACTOR = 0.86139 EXHAUST MOLE. WT. = 27.098 EXHAUST DENSITY = 0.070162 EXHAUST FLOW RATE = 701.80

MEASURED CONC.	PART PER MILLION WET			PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY	
	20361.	13.259	7.9330	8.84980	2.0983
CORRECTED CONC. TO WET BASIS			6.8334	7.6231	1.8075

	HC	NOX	CO
EMISSION RATE	0.51299	0.0011073	3.4817
EMISSION MASS/MODE	0.0085498	1.8456E-05	0.058028
EMISSION MASS/RATED HP	5.3437E-05	1.1535E-07	0.00036267
MODE EMIS./STR. CYCLE %	2.8124	0.0076899	0.86351

CAL. FUEL AIR RATIO = 0.089140 MEAS. FUEL AIR RATIO = 0.087544 DIFF MEAS. & CAL. F/A PERCENT = 1.8233

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	261.26	280.73	260.67	412.73

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SFXT-1	SFXT-2
	1470.4	-454.00	136.52	549.17	497.54	491.41

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 10.892
	156.25	327.08	46.361	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 28.885
	6.0558	592.98	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	59.608	50.502	70.398	53.990

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	82.979	0.075207	53.429	279.36

CELL TEMP. = 77.097 HEATED TEMP = 81.963 COOLER TEMP = 40.805

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OF POOR QUALITY

NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDETT REC 04/02/76 21:13:56.132 FAC SEX15 PGM C003 RDG 2862

LEANOUT 25 BTDC I & T 59 DEG HUM = 60 % 3/4 T CLOSED MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.200 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS. TOTAL
	60.610	29.196	17.465	77.856	0.53336	14.345

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	77.422	5.7549	44.715	8.2155	6.5097	6.1329

COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	65.009	-0.0052584	0.53829	0.00000	59.664	46.516

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	59.664	15.055	47.954	1.1012	2.0562

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	RHP
	0.084896	0.084318	1.2571	1204.6	1207.1	8.8592	2.0319

WET CORRECTION FACTOR = 0.84969 EXHAUST MOLE. WT. = 27.298 EXHAUST DENSITY = 0.070680 EXHAUST FLOW RATE = 1202.6

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	3831.9	47.253	8.1768	10.1820	0.15552
CORRECTED CONC. TO WET BASIS			6.9477	8.6514	0.13214

EMISSION RATE	HC	NOX	CO
	0.16543	0.0067622	6.0659
EMISSION MASS/MODE	0.030329	0.0017397	1.1121
EMISSION MASS/RATED HP	0.00018956	7.7484E-06	0.0069508
MODE EMIS./STD. CYCLE %	9.9768	0.51656	16.549

CAL. FUEL AIR RATIO = 0.086212 MEAS. FUEL AIR RATIO = 0.084896 DIFF MEAS. & CAL. F/A PERCENT = 1.5504

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	283.40	299.95	288.23	409.48

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1316.0	-454.00	104.53	524.73	514.24	509.41

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 7.7726
	156.01	349.38	57.327	

DYNO COND.	TORQUE	RPM	CYL. RACK PRESSURE = 29.192
	7.9784	1221.7	

INDUCTION AIR	TAIPT1	TAIPT2	TAIR11	TAIPT2
	59.960	53.610	87.946	55.848

CRIFICE AIR	TEMP	DELTA P	NOFD	FLOW
	82.207	2.0367	53.342	1990.7

CELL TEMP. = 79.757 HEATED TEMP = 81.824 COOLER TEMP = 53.177

NASA-LEWIS PRELIMINARY DATA 04 02/76 CADDFT REC 04/02/76 21:14:17.293 FAC SEX15 PGM C003 RDG 2863

LEANOUT 25 BTDC I & T 59 DEG HUM = 60 % 3/4 T CLOSED MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.200 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	60.835	29.201	17.746	79.056	0.54070	14.346

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW FROM	FPIP
	77.493	5.7528	44.714	8.0540	6.6997	6.1263

COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT.
	65.260	0.0033211	0.62630	2241.8	59.098	46.476

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	59.098	0.22002	47.877	1.0994	1.8314

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.084746	0.084170	1.2549	1205.3	1206.6	7.8941	1.8094

WET CORRECTION FACTOR = 0.84920 EXHAUST MOLE. WT. = 27.309 EXHAUST DENSITY = 0.070710 EXHAUST FLOW RATE = 1220.4

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	NOX PPM	CO DRY
3801.6	46.693	8.1620
		6.9311
CORRECTED CONC. TO WET BASIS		8.6664
		0.12936

EMISSION RATE	HC	NOX	CO
	0.16656	0.0067812	6.1412
EMISSION MASS/MODE	0.0083280	0.00033906	0.30706
EMISSION MASS/RATED HP	5.2050E-05	2.1191E-06	0.0019141
MODE EMIS./STD. CYCLE %	2.7395	0.14127	4.5693

CAL. FUEL AIR RATIO = 0.086149 MEAS. FUEL AIR RATIO = 0.084746 DIFF MEAS. & CAL. F/A PERCENT = 1.6554

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	280.60	297.44	286.08	355.24

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SFXT-1	SFXT-2
	1296.9	-454.00	76.973	155.13	507.53	502.38

ENGINE OIL	EQILT	SOILT	OILP	MANIFOLD PRESSURE
	155.67	-29.612	57.382	7.7750

DYNE COND.	TORQUE	RPM	CYL. BACK PRESSURE
	2.5851	1197.7	29.320

INDUCTION AIR	TAIPT1	TAIPT2	TAIPT1	TAIPT2
	60.195	50.835	112.76	56.226

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	83.286	3.0206	53.377	2397.9

CELL TEMP. = 78.854 HEATER TEMP = 81.810 COOLER TEMP = 53.753

NASA-LFWIS PRELIMINARY DATA 04/02/76 CADDFT1 REC 04/02/76 21:19:35.628 FAC SFX15 PGM C003 RDG 2864

LFANOUT 25 BTDC I & T 59 DEG HUM = 60 \* 3/4 T CLOSED MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.200 RATED H<sub>i</sub> = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	61.710	29.195	9.7944	43.776	0.29640	14.343

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	77.758	5.7921	44.707	3.9683	3.8944	6.1317

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	66.058	0.0016605	0.61025	2233.4	56.713	46.206

REL-HUM	1	2	HUMIDITY	H <sub>2</sub> O VAPOR CORRECTED HP
	56.713	18.370	47.395	1.0884

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	PPM-1	RPM-2	TORQUE	BHP
	0.088961	0.088363	1.3278	595.68	594.12	5.9423	0.67397

WET CORRECTION FACTOR = 0.86343 EXHAUST MOLE. WT. = 26.993 EXHAUST DENSITY = 0.069891 EXHAUST FLOW RATE = 686.31

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	NOX PPM	CO DRY
19921.	12.223	8.2928
CORRECTED CONC. TO WET BASIS		7.1602

	HC	NOX	CO
EMISSION RATE	0.49085	0.00099828	3.5677
EMISSION MASS/MODE	0.0081808	1.5638E-05	0.059461
EMISSION MASS/RATED HP	5.1130E-05	1.0399E-07	0.00037163
MODE EMIS./STD. CYCLE %	2.6911	0.0069325	0.88484

CAL. FUEL AIR RATIO = 0.089955 MEAS. FUEL AIR RATIO = 0.088961 DIFF MEAS. & CAL. F/A PERCENT = 1.1171

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	289.03	302.58	288.48	380.98

FXT GAS TEMP DEG.F	FXT-1	FXT-2	FXT-3	FXT-4	SEXT-1	SEXT-2
	1171.1	-454.00	117.33	518.94	503.66	499.70

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 10.982
	153.73	311.85	45.225	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.427
	5.5085	591.36	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	60.917	51.710	69.923	54.491

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	83.752	2.0248	53.430	1984.4

CELL TEMP. = 79.305 HEATER TEMP = 81.547 COOLER TEMP = 41.631

NASA-LEWIS PPELIMINARY DATA 04/02/76 CADDEIT REC 04/02/76 21:23:38.362 FAC SEX15 PGM C003 RDG 2865

LEANOUT 25 BTDC I & T 59 DEG HUM = 60 % NEUTRAL MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.200 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.048	29.199	11.761	52.533	0.35760	14.343

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	75.270	5.7576	44.772	3.9758	4.9715	6.1404

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	63.311	-0.0013838	0.57621	0.00000	62.675	46.346

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	62.675	30.001	47.650	1.0942	0.42091

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.094636	0.093996	1.4125	610.62	610.14	3.5837	0.41665

WET CORRECTION FACTOR = 0.85842 EXHAUST MOLE. WT. = 26.587 EXHAUST DENSITY = 0.068841 EXHAUST FLOW RATE = 840.51

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	31586	7.09820
NOX PPM	5.3805	3.1239
CO DRY	9.6516	2.7129
CO2 DRY	8.3817	6.1556

CORRECTED CONC. TO WET BASIS	HC	NOX	CO
EMISSION RATE	0.95309	0.00053816	5.1146
EMISSION MASS/MODE	0.015885	8.9594E-06	0.085243
EMISSION MASS/RATED HP	9.9280E-05	5.6059E-08	0.00053277
MODE EMISS./STD. CYCLE %	5.2253	0.3037372	1.2685

CAL. FUEL AIR RATIO = 0.097405 MEAS. FUEL AIR RATIO = 0.094635 DIFF MEAS. & CAL. F/A PERCENT = 2.9258

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	269.13	285.56	268.29	402.30

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1421.3	-454.00	49.350	527.56	482.89	479.18

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 11.617
	151.48	349.12	46.629	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.532
	6.4230	597.00	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	58.253	59.048	62.865	54.805

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	60.910	1.0236	53.400	1429.2

CELL TEMP. = 76.581 HEATER TEMP = 81.350 COOLER TEMP = 43.941

NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDEII REC 04/02/75 21:25:08.766 FAC SEX15 PGM C003 ROD 2866

LEANOUT 25 BTDC I & T 59 DEG HUM = 60 % NEUTRAL MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.200 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.103	29.701	19.271	85.847	0.58888	14.342

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	75.110	5.7102	44.776	9.9252	8.2778	6.1209

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	63.824	0.0066422	0.60970	2258.5	63.027	46.546

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	63.027	7.0367	48.018	1.1026	1.7207

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	RHP
	0.096425	0.095768	1.4392	1201.6	1202.5	7.4424	1.7028

WET CORRECTION FACTOR = 0.95913 EXHAUST MOLE. WT. = 26.454 EXHAUST DENSITY = 0.068523 EXHAUST FLOW RATE = 1382.2

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	8230.8	20.450	11.401	8.21270	0.29819
CORRECTED CONC. TO WET BASIS			9.7949	7.0558	0.25618

	HC	NOX	CO
EMISSION RATE	0.40843	0.0033637	9.8291
EMISSION MASS/MODE	0.074878	0.00061668	1.8020
EMISSION MASS/PATED HP	0.00046799	3.8542E-06	0.011263
MODE EMIS./STD. CYCLE %	24.631	0.25695	26.816

CAL. FUEL AIR RATIO = 0.097277 MEAS. FUEL AIR RATIO = 0.096425 DIFF MEAS. & CAL. F/A PERCENT = 0.88339

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	293.27	309.49	298.41	369.34

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	724.00	-454.00	107.64	529.43	523.54	521.17

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 8.2637
	153.91	372.79	56.922	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.238
	9.7858	1189.0	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	58.479	59.103	79.597	56.108

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	81.095	0.063706	53.410	244.16

CYLL TEMP. = 77.316 HEATER TEMP = 81.241 COOLER TEMP = 53.330



NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDEII REC 04/02/76 21:25:29.274 FAC SEX15 PG4 C003 RDG 2867

LEANOUT 25 BTDC I & T 59 DEG HUM = 60 % NEUTRAL MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.200 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.310	29.200	19.531	86.951	0.59979	14.342

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	75.163	5.7105	44.775	9.9953	8.3258	6.1203

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	64.003	0.0016605	0.56763	2233.4	62.905	46.691

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	62.905	18.624	48.286	1.1088	1.4492

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	PPM-2	TORQUE	BHP
	0.095753	0.095097	1.4292	1201.4	1201.7	6.2673	1.4337

WET CORRECTION FACTOR = 0.85585 EXHAUST MOLE. WT. = 26.510 EXHAUST DENSITY = 0.068642 EXHAUST FLOW RATE = 1396.8

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	8622.9	19.348	11.392	8.23140	0.28625
CORRECTED CONC. TO WET BASIS			9.7494	7.0449	0.24499

	HC	NOX	CO
EMISSION RATE	0.43228	0.0032159	9.8864
EMISSION MASS/MODE	0.021619	0.00016080	0.49432
EMISSION MASS/RATED HP	0.00013512	1.0050E-06	0.0030895
MODE EMIS./STD. CYCLE %	7.1116	0.066998	7.3560

CAL. FUEL AIR RATIO = 0.097500 MEAS. FUEL AIR RATIO = 0.095753 DIFF MEAS. & CAL. F/A PERCENT = 1.8246

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	289.38	305.43	294.67	371.79

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1523.6	-454.00	66.528	180.18	513.80	510.79

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 8.3215
	153.86	7.3282	55.406	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.210
	11.003	1214.4	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	53.687	59.310	106.67	56.365

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	81.174	2.0323	53.451	1992.6

CELL TEMP. = 77.343 HEATER TEMP = 81.213 COOLER TEMP = 51.645



NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDEII REC 04/02/76 21:30:15.890 FAC SEX15 PGM C003 R0G 2868

LEANOUT 25 BTDC I & T 59 DEG HUM = 60 ° NEUTRAL MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.200 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS. TOTAL
	60.042	29.198	11.108	49.542	0.34099	14.343

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	75.801	5.7621	44.758	3.9694	4.7675	6.1296

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	64.695	-0.0060887	0.58562	0.00000	61.158	46.636

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	61.158	9.4969	48.180	1.1064	0.88685

ENG. COND.	F/A DRY	F/A WET	EQV. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.096232	0.095574	1.4363	583.56	581.83	7.8924	0.87694

WET CORRECTION FACTOR = 0.87275 EXHAUST MOLE. WT. = 26.478 EXHAUST DENSITY = 0.068557 EXHAUST FLOW RATE = 797.15

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	32248.	5.8816	9.7319	7.00280	3.1434
CORRECTED CONC. TO WET BASIS			8.4935	6.1117	2.7434

	HC	NOX	CO
EMISSION RATE	0.92287	0.00055793	4.9154
EMISSION MASS/MODE	0.015381	9.2988E-06	0.081924
EMISSION MASS/PATED HP	9.6132E-05	5.8118E-08	0.00051202
MODE EMIS./STD. CYCLE S	5.0596	0.0038745	1.2191

CAL. FUEL AIR RATIO = 0.097952 MEAS. FUEL AIR RATIO = 0.096232 DIFF MEAS. & CAL. F/A PERCENT = 1.7874

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	291.09	296.55	279.12	409.87

EXT GAS TEMP DEG. F	FXT-1	FXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1192.3	-454.00	68.995	481.27	509.90	506.25

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE =
	152.67	288.90	45.169	11.810

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE =
	5.3573	577.56	29.353

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	59.238	60.042	74.203	55.477

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	81.588	1.0202	53.387	1426.0

CELL TEMP. = 77.413 HEATER TEMP = 81.033 COOLER TEMP = 47.160

NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDET REC 04/02/76 21:35:48.487 FAC SEX15 PG4 C003 RDG 2869

LEANOUT 25 BYDC 1.8 T 59 DEG HUM = 60 % 3/4 T OPEN MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.200 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	60.736	29.200	13.313	59.454	0.41073	14.342

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	76.466	5.7237	44.741	3.9696	6.2376	6.1308

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	65.054	-0.0058119	0.59281	0.00000	59.880	46.731

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	59.880	34.841	48.359	1.1105	0.46194

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10492	0.10420	1.5559	591.84	588.66	4.0504	0.45643

WET CORRECTION FACTOR = 0.89503 EXHAUST MILE. WT. = 25.912 EXHAUST DENSITY = 0.067093 EXHAUST FLOW RATE = 985.22

MEASURED CONC.	PART PER MILLION WFT		PER CENT	
	HC PPM	NOX PPM	CO DRY	O2 DRY
	39848.	4.7725	10.465	6.03310
CORRECTED CONC. TO WET BASIS			9.3669	3.4460

	HC	NOX	CO
EMISSION RATE	1.4094	0.00055953	6.6998
EMISSION MASS/MODE	0.023491	9.3255E-06	0.11166
EMISSION MASS/RATED HP	0.00014682	5.8285E-08	0.00069790
MODE EMIS./STD. CYCLE %	7.7272	0.0038856	1.6617

CAL. FUEL AIR RATIO = 0.10237 MEAS. FUEL AIR RATIO = 0.10492 DIFF MEAS. & CAL. F/A PERCENT = -2.4299

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	256.65	277.75	255.08	411.55

FXT GAS TEMP DEG. F	FXT-1	FXT-2	FXT-3	FXT-4	SFXT-1	SFXT-2
	1125.7	-454.00	6.2250	383.63	487.22	484.04

ENGINE OIL	FOILT	SOILT	OIL2	MANIFOLD PRESSURE = 12.976
	147.58	419.62	46.817	

DYNO COND.	TORQUE	PPM	CYL. PACK PRESSURE = 29.458
	4.7525	578.40	

INDUCTION AIR	TAIPT1	TAIPT2	TAIRT1	TAIRT2
	59.978	50.736	43.373	54.775

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	82.240	1.0286	53.425	1430.9

CELL TEMP. = 77.044 HEATER TEMP = 80.783 COOLIR TEMP = 44.565

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NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDET1 PFC 04/02/76 21:37:59.523 FAC SEX15 PGM C003 RDG 2870

LEANOUT 25 BTDC 1 & T 59 DEG HUM = 60 % 3/4 T OPEN MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.200 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	60.971	29.190	21.321	94.949	0.66189	14.344

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	76.289	5.6805	44.745	11.078	9.4989	6.1179

COOLING AIR	TEMP	UNEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	65.539	-0.013838	0.63322	0.00000	59.925	46.971

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	59.925	18.416	48.797	1.1205

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10004	0.099350	1.4932	1199.0	1198.4	5.5839	1.2748

WET CORRECTION FACTOR = 0.85672 EXHAUST MOLE. WT. = 26.723 EXHAUST DENSITY = 0.067897 EXHAUST FLOW RATE = 1548.1

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	12887.	12.404	12.334	7.5687	0.38856
CORRECTED CONC. TO WET BASIS			10.567	6.4842	0.33288

	HC	NOX	CO
EMISSION RATE	0.71622	0.0022851	11.876
EMISSION MASS/MODE	0.13131	0.00041894	2.1773
EMISSION MASS/RATED HP	0.0002067	2.5184E-06	0.013608
MODE EMISS./STD. CYCLE %	43.193	0.17456	32.401

CAL. FUEL AIR RATIO = 0.10281 MEAS. FUEL AIR RATIO = 0.10004 DIFF MEAS. & CAL. F/A PERCENT = 2.7669

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	289.63	309.18	291.63	404.95

FXT GAS TEMP DEG.F	FXT-1	FXT-2	FXT-3	FXT-4	SEXT-1	SEXT-2
	1312.3	-454.00	53.168	527.92	539.41	537.97

ENGINE OIL	OILT	SOILT	OILP	MANIFOLD PRESSURE
	149.26	319.92	57.418	8.8118

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	0.72007	1202.4	29.297

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	60.393	60.971	56.572	56.250

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	82.460	1.0298	53.442	1438.3

CYLL TEMP. = 78.757 HEATER TEMP = 80.713 COOLER TEMP = 51.924

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NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDEII REC 04/02/76 21:38:20.441 FAC SEX15 PGM C003 RDG 2871

LEANOUT 25 BTDC/I & T 59 DEG HUM = 60 7/8 T 7PEN MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.200 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	61.007	29.193	20.569	91.677	0.63785	14.344

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	76.360	5.6844	44.743	11.028	9.4689	6.1131

COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	65.673	0.0058119	0.63018	2254.3	59.735	46.921

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	59.735	19.850	48.703	1.1184 1.7374

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	PPM-1	RPM-2	TORQUE	BHP
	0.10329	0.10257	1.5416	1200.1	1199.6	7.5091	1.7159

WET CORRECTION FACTOR = 0.84769 EXHAUST MOLE. WT. = 26.014 EXHAUST DENSITY = 0.067357 EXHAUST FLOW RATE = 1511.1

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	12547.	12.53F	12.388	7.5843	0.38756
CORRECTED CONC. TO WET BASIS			10.749	6.5808	0.33628

	HC	NOX	CO
EMISSION RATE	0.68067	0.0022541	11.792
EMISSION MASS/MODE	0.034034	0.00011271	0.58961
EMISSION MASS/RATED HP	0.00021271	7.0441E-07	0.0036851
MODE EMIS./STD. CYCLE %	11.195	0.046961	8.7740

CAL. FUEL AIR RATIO = 0.10257 MEAS. FUEL AIR RATIO = 0.10329 DIFF MEAS. & CAL. F/A PERCENT = -0.69406

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	286.80	305.08	288.32	362.72

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1636.9	-454.00	9.3841	217.46	528.44	526.25

ENGINE OIL	EQILT	SOILT	OILP	MANIFOLD PRESSURE = 8.7418
	149.41	42.802	57.506	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.299
	4.4572	1204.2	

INDUCTION AIR	TAIPT1	TAIRT2	TAIRT1	TAIRT2
	60.411	61.007	89.235	55.819

ORIFICE AIR	TEMP	DELTA P	DEFO	FLOW
	82.530	2.0332	53.441	1990.5

CELL TEMP. = 79.722 HEATER TEMP = 80.700 COOLER TEMP = 47.829

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NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDEII REC 04/02/76 21:43:09.863 FAC SEX15 PGM C003 RDG 2872

LEANOUT 25 BTDC 1-8 T 59 DEG HUM = 60 7/8 T OPEN MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. RAPIDOMETRIC PRESSURE = 29.200 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.274	29.197	12.971	57.843	0.40271	14.341

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	74.320	5.7237	44.797	3.9746	6.2346	6.1323

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	63.869	-0.0047049	0.64346	0.00000	63.560	46.931

REL-HUM	1	2	HUMIDITY	H2O VAPOR	CORRECTED HP
	63.560	0.39004	48.734	1.1191	0.38753

ENG. COND.	F/A DRY	F/A WET	EQV. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10778	0.10704	1.6087	604.02	606.96	3.3337	0.38340

WET CORRECTION FACTOR = 0.89380 EXHAUST MOLE WT. = 25.738 EXHAUST DENSITY = 0.066641 EXHAUST FLOW RATE = 967.58

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	NOX PPM	CO DRY
39374.	5.1185	10.915
		6.0379
CORRECTED CONC. TO WET BASIS		5.3967
		3.0272

	HC	NOX	CO
EMISSION RATE	1.3677	0.00058936	6.8529
EMISSION MASS/MODE	0.022796	9.9226E-06	0.11421
EMISSION MASS/RATED HP	0.00014247	5.1391E-08	0.00071384
MODE EMIS./STD. CYCLE %	7.4086	0.0040928	1.6996

CAL. FUEL AIR RATIO = 0.10513 MEAS. FUEL AIR RATIO = 0.10778 DIFF MEAS. & CAL. F/A PERCENT = -2.4596

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	273.99	290.42	272.38	389.26

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1240.6	-454.00	-62.706	429.38	493.35	490.66

ENGINE OIL	FILTY	SOILT	DILP	MANIFOLD PRESSURE =
	147.19	276.60	46.913	12.608

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE =
	5.9406	593.46	29.145

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	58.569	59.274	64.122	55.406

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	80.549	2.0057	53.413	1981.4

CELL TEMP. = 76.733 HEATER TEMP = 80.526 COOLER TEMP = 47.179

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NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDELL REC 04/02/76 21:47:36.768 FAC SFX15 PGM C003 R9G 2873  
 LEANOUT 25 BTDC 1.6 T.59 DEG HUM = 60 % 1 1/2 T OPEN MODE = 1.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.210 RATED HP. = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.211	29.211	15.078	67.290	0.47114	14.349
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW FROM	FPIP
	73.991	5.7009	44.806	3.9788	7.3267	6.1107
COOLING AIR	TEMP	UNDER-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	63.662	-0.011347	0.59032	0.00000	64.101	47.095
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP	
	64.101	23.432	49.012	1.1255	0.27227	
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE
	0.10888	0.10813	1.6251	610.62	610.14	2.3159
						BHP
						0.25937
WET CORRECTION FACTOR = 0.89604		EXHAUST MOLE. WT. = 25.572		EXHAUST DENSITY = 0.066472		EXHAUST FLOW RATE = 1129.6
MEASURED CONC.	PART PER MILLION WET		PER CENT			
	HC PPM	NOX PPM	CO DRY	CO2 DRY	CO DRY	
	43954.	4.9495	11.100	5.5847	3.9041	
CORRECTED CONC. TO WET BASIS			9.9456	5.0041	3.4982	
EMISSION RATE	HC	NOX	CO			
	1.7825	0.00066534	8.1565			
EMISSION MASS/MODE	0.029708	1.1089E-05	0.13594			
EMISSION MASS/RATED HP	0.00018568	6.9306E-08	0.0004963			
MODE EMIS./STD. CYCLE %	9.7725	0.3046204	2.0229			
CAL. FUEL AIR RATIO = 0.10694		MEAS. FUEL AIR RATIO = 0.10888		DIFF MEAS. & CAL. F/A PERCENT = -1.7849		
CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4		
	246.72	269.56	244.98	443.77		
EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	343.56	-454.00	-118.66	467.96	460.55	457.04
ENGINE OIL	FOILT	SOILT	OTLP	MANIFOLD PRESSURE = 13.244		
	144.96	292.46	47.333			
DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.013			
	6.0918	602.82				
INDUCTION AIR	TAIPT1	TAIPT2	TAIRT1	TAIRT2		
	58.488	59.211	102.65	55.297		
ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW		
	80.319	1.0505	53.389	1448.4		
CELL TEMP. = 76.041	HEATER TEMP = 80.773		COOLER TEMP = 47.793			

NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDEII PEC 04/02/76 21:53:17.480 FAC SEX15 PGM C003 R00 2874

LEANOUT 25 BTDC T & T 59 DEG HUM = 60 ± 1 1/2 T OPEN MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. PARAMETRIC PRESSURE = 29.210 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.292	29.203	22.209	99.067	0.69131	14.348

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	74.169	5.6715	44.891	11.869	10.279	5.1157

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT
	64.515	0.0088562	0.52861	2269.6	63.698	47.005

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	63.698	0.21002	48.847	1.1217	1.2761

ENG. COND.	F/A DRY	F/A WET	EQ. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10376	0.10304	1.5486	1199.8	1200.7	5.5255	1.2522

WET CORRECTION FACTOR = 0.85027 EXHAUST MOLE. WT. = 25.995 EXHAUST DENSITY = 0.067280 EXHAUST FLOW RATE = 1635.5

MEASURED CONC.	PART PER MILLION WET	CO DRY	PER CENT	CO DRY
	HC PPM	12.919	7.1708	0.42345
	NOX PPM	11.114	6.1689	0.36429

CORRECTED CONC. TO WET BASIS	HC	NOX	CO
	0.91163	0.0018263	13.196
	0.16713	0.00033483	2.4193
	0.0010446	2.0927E-06	0.015121
	54.978	0.13951	36.002

CAL. FUEL AIR RATIO = 0.10634 MEAS. FUEL AIR RATIO = 0.10376 DIFF MEAS. & CAL. F/A PERCENT = 2.4912

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	297.47	317.09	299.66	416.49

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	909.77	-454.00	293.38	648.12	555.32	555.75

ENGINE OIL	ECILT	SOILT	OILP	MANIFOLD PRESSURE = 9.0880
	148.10	393.01	55.406	

DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.279
	6.0558	1201.0	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	59.741	59.292	114.23	55.531

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	80.672	1.0709	53.431	1451.7

CYL TEMP. = 77.635 HEATER TEMP = 80.290 COOLER TEMP = 48.867



NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDEII REC 04/02/75 21:50:38.628 FAC SFX15 PGM C003 RCG 2875

LEANOUT 25 BTDC I & T 59 DEG HUM = 60 % 1 1/2 T OPEN MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.210 RATED HP = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.373	29.211	22.235	99.221	0.69018	14.350

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	74.400	5.6715	44.795	11.752	10.177	6.1179

COOLING AIR	TEMP	UNEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	64.605	0.0030443	0.59890	2240.4	63.322	46.926

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	63.322	25.038	48.692	1.1181	1.5409

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10257	0.10186	1.5309	1199.1	1199.6	6.6757	1.5241

WET CORRECTION FACTOR = 0.85785 EXHAUST MOLE. WT. = 25.050 EXHAUST DENSITY = 0.067475 EXHAUST FLOW RATE = 1631.5

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	CO2 DRY
	HC PPM	NOX PPM			
	15332.	9.4209	12.816	7.2249	0.44498
CORRECTED CONC. TO WET BASIS			10.994	6.1979	0.38173

	HC	NOX	CO
EMISSION RATE	0.89806	0.0018291	13.022
EMISSION MASS/MODE	0.044903	9.1455E-05	0.65112
EMISSION MASS/RATED HP	0.00028064	5.7159E-07	0.0040695
MODE EMIS./STD. CYCLE	14.771	0.038106	9.6892

CAL. FUEL AIR RATIO = 0.10590 MEAS. FUEL AIR RATIO = 0.10257 DIFF MEAS. & CAL. F/A PERCENT = 3.1497

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	293.72	312.90	295.49	394.90

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1387.6	-454.00	242.62	327.87	544.73	543.42

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 9.0318
	148.48	-9.4828	55.526	

DYNO COND.	TORQUE	RPM	CYL BACK PRESSURE = 29.147
	9.3681	1192.7	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	58.705	59.373	111.41	55.421

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	80.734	2.0057	53.385	1981.0

CELL TEMP. = 77.405 HEATER TEMP = 80.282 COOLER TEMP = 48.199

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NASA-LEWIS PRELIMINARY DATA 04/02/76 CADDEII REC 04/02/76 21:55:55.642 FAC SFY15 PGM C003 R0G 2876

LEANOUT 25 BTDC 1-6 T 59 DEG HUM = 60 % 1 1/2-T OPEN MODE = 7.0000 NO. SCANS = 4

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.210 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	60.484	29.212	15.171	67.717	0.47573	14.350

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	74.910	5.7002	44.782	3.9741	7.2645	6.1172

COOLING AIR	TEMP	INDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	65.353	-0.0027676	0.72164	0.00000	61.463	47.184

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	61.463	24.755	49.177	1.1293	0.66758

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10728	0.10653	1.6012	612.44	614.61	5.6558	0.65964

WET CORRECTION FACTOR = 0.88330 EXHAUST MOLE. WT. = 25.758 EXHAUST DENSITY = 0.066720 EXHAUST FLOW RATE = 1131.0

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	42799.	5.3668	11.428	5.5974	3.5113
CORRECTED CONC. TO WET BASIS			10.094	4.9441	3.1016

	HC	NOX	CO
EMISSION RATE	1.7377	0.00072228	8.2880.
EMISSION MASS/MODE	0.028962	1.2038E-05	0.13813
EMISSION MASS/RATED HP	0.00018101	7.5237E-08	0.00086334
MODE EMIS./STD. CYCLE %	9.5268	0.0050158	2.0556

CAI FUEL AIR RATIO = 0.10916 MEAS. FUEL AIR RATIO = 0.10728 DIFF MEAS. & CAL. F/A PERCENT = 1.7517

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	274.40	294.13	273.35	490.81

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1783.6	-454.00	178.99	625.79	511.69	509.33

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 13.107
	147.22	334.64	47.000	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.627
	2.6193	612.74	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	59.741	60.484	123.55	55.214

ORIFICE AIR	TEMP	DELTA P	DIFF	FLOW
	P1.452	1.2948	53.449	1603.6

CELL TEMP. = 77.359

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NASA-LEWIS PRELIMINARY DATA 04/06/76 CADDELI REC 04/06/76 17:26:58.803 FAC SEX15 PGM C003 RDG 2877  
 LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 60 % MODE = 3.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.030 RATED HP. = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS. TOTAL
	59.094	29.043	211.43	969.15	6.4569	14.751
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	71.759	5.3426	44.865	82.086	78.536	6.0414
COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	61.574	3.0994	3.9092	10141.	63.001	46.526
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP	
	63.001	12.689	46.637	1.0709	157.14	
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE
	0.081036	0.080499	1.2095	2703.8	2706.1	291.24
						BHP
						149.93
WET CORRECTION FACTOR = 0.84279			EXHAUST MOLE. WT. = 27.598		EXHAUST DENSITY = 0.071458	
EXHAUST FLOW RATE = 14751.						
MEASURED CONC.	PART PER MILLION WET		PER CENT			
	HC PPM	NOX PPM	CO DRY	CO2 DRY	NO2 DRY	
	1527.2	285.65	7.8229	10.074	0.088509	
CORRECTED CONC. TO WET BASIS			6.5930	8.4901	0.074594	
EMISSION RATE	HC	NOX	CO			
	0.80877	0.50145	70.611			
EMISSION MASS/MODE	0.0040438	0.0025072	0.35305			
EMISSION MASS/RATED HP	2.5274E-05	1.5670E-05	0.0022066			
MODE EMIS./STD. CYCLE %	1.3302	1.0447	5.2538			
CAL. FUEL AIR RATIO = 0.084768			MEAS. FUEL AIR RATIO = 0.081036		DIFF MEAS. & CAL. F/A PERCENT = 4.6052	
CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4		
	390.50	420.81	398.54	405.03		
EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1293.1	-454.00	578.65	793.82	1293.8	1295.4
ENGINE OIL	EOILT	SOILT	DOILP	MANIFOLD PRESSURE = 27.909		
	135.02	105.17	75.996			
DYMO COND.	TORQUE	RPM	CYL. RACK PRESSURE = 29.143			
	293.81	2646.1				
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2		
	58.777	59.094	1.9730	56.032		
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW		
	79.772	1.9985	52.968	1979.4		
CELL TEMP. = 74.586	HEATER TEMP = 79.836		COOLER TEMP = 52.609			

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NASA LEWIS PRELIMINARY DATA 04/06/76 CADDF11 REC 04/06/76 17:33:10.566 FAC SEX11 PGM C003 RDG 2879

LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 60 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.030 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	60.123	29.014	118.68	531.55	3.5437	14.400

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	74.932	5.5686	44.781	41.600	33.723	6.0993

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	62.448	3.0122	3.8256	9981.0	59.320	45.906

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	59.320	36.036	46.667	1.0716	65.358

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.063444	0.063023	0.94692	2353.0	2355.2	143.74	64.397

WET CORRECTION FACTOR = 0.87164 EXHAUST MOL.F. WT. = 28.812 EXHAUST DENSITY = 0.074601 EXHAUST FLOW RATE = 7624.7

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	CO2 DRY	O2 DRY
	HC PPM	NOX PPM				
	271.83	1411.4	0.42113	12.917	1.5486	
CORRECTED CONC. TO WET BASIS			0.36708	11.259	1.3498	

	HC	NOX	CO
EMISSION RATE	0.074406	1.2807	2.0320
EMISSION MASS/MODE	0.0074406	0.12807	0.20320
EMISSION MASS/RATED HP	4.6504E-05	0.00080041	0.0012700
MODE EMIS./STD. CYCLE %	2.4476	53.361	3.0238

CAL. FUEL AIR RATIO = 0.063150 MEAS. FUEL AIR RATIO = 0.063444 DIFF MEAS. & CAL. F/A PERCENT = -0.46307

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	334.56	334.20	356.60	668.73

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1547.3	800.26	1272.9	1428.1	1243.9	1246.0

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 20.285
	152.01	90.069	72.175	

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.161
	140.62	2298.8	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	59.807	60.123	146.74	55.548

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	80.796	1.0167	53.000	1424.6

CELL TEMP. = 75.822 HEATER TEMP = 79.491 COOLER TEMP = 53.195

NASA-LEWIS PRELIMINARY DATA 04/06/76 CANDELL REC 04/06/76 17:38:20.950 FAC SEX15 PGM C003 RDG 2880

LEANOUT 25 ATDC TO CL APP 59 DEG HUM = 60 % MODE = 3.0000 NO. SCANS = 5.

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.040 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	57.855	29.015	208.50	956.10	6.3967	14.737

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	71.295	5.2346	44.877	82.914	79.865	5.8923

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	60.898	3.0928	3.8314	10129.	66.073	46.611

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	66.073	39.196	46.833	1.0754 154.43

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.083532	0.082977	1.2467	2703.2	2705.6	285.30	147.36

WET CORRECTION FACTOR = 0.84827 EXHAUST MOLE. WT. = 27.402 EXHAUST DENSITY = 0.070952 EXHAUST FLOW RATE = 14691.

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY
	1474.3	178.94	8.1971	9.8822
CORRECTED CONC. TO WET BASIS			6.9534	8.3828
				0.0058005
				0.0049205

EMISSION RATE	HC	NOX	CO
	0.77759	0.31283	74.164
EMISSION MASS/MODE	0.0038879	0.0015641	0.37082
EMISSION MASS/RATED HP	2.4300E-05	9.7759E-06	0.0023176
MODE FMIS./STD. CYCLE %	1.2789	0.55172	5.5181

CAL. FUEL AIR RATIO = 0.085998 MEAS. FUEL AIR RATIO = 0.083532 DIFF MEAS. & CAL. F/A PERCENT = 2.9523

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	395.99	421.48	405.34	473.18

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1592.7	-454.00	475.16	1133.3	1342.8	1343.4

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 27.949
	164.72	232.88	72.579	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.191
	290.53	2635.0	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	57.574	57.855	104.55	55.314

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	79.119	1.0342	52.993	1438.9

CFLI TEMP. = 76.324 HEATER TEMP = 79.331 COOLER TEMP = 50.545

NASA-LEWIS PRELIMINARY DATA 04/06/76 CADDE11 REC 04/06/76 17:45:41.851 FAC SEX15 PGM C003 RDG 2882

LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 60 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.040 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	58.858	29.048	118.09	528.83	3.5362	14.403

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	74.231	5.5908	44.799	42.402	33.294	6.1026

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	61.574	3.1085	3.9145	10157.	62.259	45.990

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	62.259	11.687	46.808	1.0749	65.360

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.062959	0.062540	0.93968	2350.4	2354.3	144.13	64.503

WET CORRECTION FACTOR = 0.87194 EXHAUST MOLE. WT. = 28.820 EXHAUST DENSITY = 0.074623 EXHAUST FLOW RATE = 7580.2

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	O2 DRY
	243.22	1416.9	0.39239	12.852
CORRECTED CONC. TO WET BASIS			0.34214	11.206

	HC	NOX	CO
EMISSION RATE	0.066189	1.2781	1.8829
EMISSION MASS/MODE	0.0066189	0.12781	0.18829
EMISSION MASS/RATED HP	4.1368E-05	0.00079884	0.0011768
MODE EMIS./STD. CYCLE %	2.1773	53.256	2.8019

CAL. FUEL AIR RATIO = 0.062737 MEAS. FUEL AIR RATIO = 0.062959 DIFF MEAS. & CAL. F/A PERCENT = -0.35190

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	336.79	330.71	359.02	571.91

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1094.9	748.91	957.01	1266.5	1271.7	1272.4

ENGINE OIL	FILT	SOILT	OILP	MANIFOLD PRESSURE = 20.299
	190.25	121.56	72.083	

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.097
	141.67	2295.5	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	58.479	58.858	60.281	55.711

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	79.305	1.0351	53.051	1439.3

CFL TEMP. = 78.254 HEATER TEMP. = 79.129 COOLER TEMP. = 53.618

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NASA-LEWIS PRELIMINARY DATA 04/06/76 CADDEII REC 04/06/76 17:52:56.538 FAC SEX15 PGM C003 RDG 2883

LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 60 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.040 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.915	29.043	203.94	932.46	6.2478	14.710

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON.	FPIP
	73.156	4.5529	44.828	79.051	76.514	5.0957

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	62.970	3.2231	3.9200	10364.	61.353	46.601

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	61.353	53.609	45.902	1.0770 152.60

ENG. COND.	F/A DRY	F/A WET	EQU. PATIO	RPM-1	RPM-2	TORQUE	BHP
	0.082055	0.081509	1.2247	2707.9	2710.5	282.06	145.43

WET CORRECTION FACTOR = 0.84757 EXHAUST MLE. WT. = 27.518 EXHAUST DENSITY = 0.071250 EXHAUST FLOW RATE = 14248.

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1422.2	197.28	7.6378	10.155	0.0016602
CORRECTED CONC. TO WET BASIS			6.24736	8.6068	0.0014071

	HC	NOX	CO
EMISSION RATE	0.72752	0.33451	66.967
EMISSION MASS/MODE	0.0036376	0.0016725	0.33483
EMISSION MASS/RATED HP	2.2735E-05	1.3453E-05	0.0020927
MODE EMIS./STD. CYCLE %	1.1966	0.69689	4.9826

CAL FUEL AIR PATIO = 0.084601 MEAS. FUEL AIR RATIO = 0.082055 DIFF MEAS. & CAL. F/A PERCENT = 3.1019

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	406.00	421.54	411.68	587.27

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1034.1	-454.00	624.58	1108.1	1348.6	1348.6

ENGINE OIL	FILT	SOILT	OIL P	MANIFOLD PRESSURE = 27.652
	188.50	208.16	73.735	

DYNO COND.	TORQUE	RPM	CYL BACK PRESSURE = 29.216
	275.88	2638.0	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	59.635	59.915	83.831	55.870

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	80.469	2.0226	53.045	1989.4

CELL TEMP. = 79.393 HEATER TEMP = 78.976 COOLER TEMP = 52.105

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NASA-LEWIS PRELIMINARY DATA 04/06/76 CADDF11 REC 04/06/76 18:01:26.070 FAC SEX15 PGM C003 RDG 2885

LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 60 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.040 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	58.189	29.045	115.01	514.95	3.4560	14.400

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	74.799	5.5830	44.785	43.953	33.117	6.1110

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	61.088	3.1968	3.8765	10317.	63.988	46.081

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	63.988	3.9604	46.279	1.0788	65.678

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.064311	0.053883	0.95987	2358.1	2360.0	144.47	64.867

WET CORRECTION FACTOR = 0.86974 EXHAUST MOLE. WT. = 28.792 EXHAUST DENSITY = 0.074551 EXHAUST FLOW RATE = 7398.0

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	CO DRY	CO2 DRY
312.13	0.38658	13.052
1551.3	0.33622	11.352
CORRECTED CONC. TO WET BASIS	CO DRY	O2 DRY
	1.1741	1.0212

EMISSION RATE	HC	NOX	CO
	0.082898	1.3657	1.8058
EMISSION MASS/MODE	0.0082898	0.13657	0.18058
EMISSION MASS/RATED HP	5.1811E-05	0.00085354	0.0011286
MODE EMIS./STD. CYCLE %	2.7269	56.902	2.6873

CAL. FUEL AIR RATIO = 0.064231 MEAS. FUEL AIR RATIO = 0.064311 DIFF MEAS. & CAL. F/A PERCENT = -0.12419

CYL TEMP DEG.F.	CYL-1	CYL-2	CYL-3	CYL-4
	337.37	336.64	350.62	643.05

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	978.05	792.47	1138.4	1312.1	1259.8	1260.4

ENGINE OIL	FILT	SOILT	OILP	MANIFOLD PRESSURE
	186.49	183.92	71.727	20.005

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	149.57	2317.9	29.096

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	57.819	58.189	148.21	55.687

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	73.386	2.9498	53.068	2381.5

CELL TEMP. = 77.847

HEATER TEMP = 78.837

COOLER TEMP = 53.294

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NASA-LEWIS		PRELIMINARY DATA		04/06/76		CADDELL		REC 04/06/76 18:07:00.021		FAC SEX15		PGM C003		RDS 2886	
LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 60 %															
MODE = 3.0000															
NO. SCANS = 5															
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 29.040				RATED HP. = 160.00				HC RATIO = 2.1250	
COMB. AIR		TEMP		PRESS		CEM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
58.922		29.051		203.69		931.59		6.2820		14.714					
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
72.871		4.3489		44.835		79.288		76.688		3.8443					
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
62.169		3.1127		3.8671		10165.		63.990		46.776					
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
63.990		22.220		47.203		1.0839		152.33							
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
0.082319		0.081767		1.2286		2698.7		2700.7		282.90		145.37			
WET CORRECTION FACTOR = 0.85439				EXHAUST MOLE. WT. = 27.497				EXHAUST DENSITY = 0.071196				EXHAUST FLOW RATE = 14250.			
MEASURED CONC.		PART PER MILLION WET				PER CENT									
1455.5		NOX PPM				CO DRY		CO2 DRY							
311.74		7.2107				0.063246									
CORRECTED CONC. TO WET BASIS		6.1507				0.054037									
EMISSION RATE		HC		NOX		CO									
0.74463		0.52864		63.736											
EMISSION MASS/MODE		0.0037232		0.0026432		0.31868									
EMISSION MASS/RATED HP		2.3270E-05		1.6520E-05		0.0019918									
MODE EMTS./STD. CYCLE %		1.2247		1.1013		4.7423									
CAL. FUEL AIR RATIO = 0.083634				MEAS. FUEL AIR RATIO = 0.082319				DIFF MEAS. & CAL. F/A PERCENT = 1.5979							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
398.28		430.12		399.41		648.33									
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
1127.7		-335.59		767.31		1124.2		1347.4		1345.8					
ENGINE OIL		EOILT		SOILT		OILP		MANTFOLD PRESSURE = 27.681							
187.78		210.90		73.891											
DYNO COND.		TORQUE		RPM		CYL. RACK PRESSURE = 29.197									
275.06		2621.6													
INDUCTION AIR		IAIRT1		IAIRT2		IAIRT1		IAIRT2							
58.642		58.922		156.75		55.835									
ORIFICE AIR		TEMP		DELTA P		ORIF		FLOW							
79.305		1.0488		53.058		1448.6									
CELL TEMP. = 78.254				HEATER TEMP = 78.747				COOLER TEMP = 51.916							

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NASA-I FWIS PRELIMINARY DATA 04/06/76 CADDEII REC 04/06/76 19:51:14.933 FAC SEX15 PGM C003 RDG 2889

LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 60 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.040 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.202	29.026	107.27	479.60	3.1900	14.378

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	73.271	5.5424	44.825	43.055	34.293	6.0843

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	61.133	3.2716	4.0368	10450.	61.070	45.805

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	61.070	0.26403	46.560	1.0692	65.931

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.071504	0.071032	1.0672	2351.3	2352.5	145.28	65.041

WET CORRECTION FACTOR = 0.85920 EXHAUST MOLE. WT. = 28.386 EXHAUST DENSITY = 0.073498 EXHAUST FLOW RATE = 7035.3

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	NOX PPM	CO DRY
1146.8	1077.5	2.5019
		12.480
		0.20136
CORRECTED CONC. TO WET BASIS		2.1497
		10.723
		0.17301

EMISSION RATE	HC	NOX	CO
	0.28965	0.90209	10.980
EMISSION MASS/MODE	0.028965	0.090209	1.0980
EMISSION MASS/RATED HP	0.00018103	0.00056380	0.0068623
MODE EMIS./STD. CYCLE %	9.5279	37.587	16.339

CAL. FUEL AIR RATIO = 0.072180 MEAS. FUEL AIR RATIO = 0.071504 DIFF MEAS. & CAL. F/A PERCENT = 0.94561

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	338.67	343.78	341.13	455.09

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1202.9	333.73	803.30	1190.8	1155.1	1158.0

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.716
	146.67	187.85	72.767	

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.092
	143.95	2300.0	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	58.886	59.202	12.799	55.663

ORIFICE AIR	TFMP	DELTAP	DRFP	FLOW
	79.181	0.10571	53.006	366.09

CELL TEMP. = 77.192 HEATER TEMP = 89.230 COOLER TEMP = 51.853

NASA-LEWIS PRELIMINARY DATA 04/06/76 CADDEII REC 04/06/76 20:05:27.950 FAC SFX15 PGM C003 RDG 2890

LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 60 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.040 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR TEMP 57.801 PRESS 29.065 CFM 206.15 DRY FLOW 943.84 VAPOR FLOW 6.3166 PRESS TOTAL 14.727

COMB. FUEL TEMP 70.118 PRESS 5.3741 DENSITY 44.908 TURBO FLOW 75.388 FLOW TRON 72.859 FPIP 5.9625

COOLING AIR TEMP 60.790 UDEL-HOOD 3.0870 DEL-HOOD 3.9169 FLOW 10118. REL-HUM 66.177 DEW-POINT 46.601

REL-HUM 1 2 HUMIDITY % H2O VAPOR CORRECTED HP 66.177 52.061 46.847 1.0758 154.96

ENG. COND. F/A DRY 0.077194 F/A WET 0.076681 EQU. RATIO 1.1522 RPM-1 2697.0 RPM-2 2698.9 TORQUE 288.56 BHP 148.18

WET CORRECTION FACTOR = 0.84982 EXHAUST MOLE. WT. = 27.908 EXHAUST DENSITY = 0.072260 EXHAUST FLOW RATE = 14157.

MEASURED CONC. PART PER MILLION WET HC PPM 1174.6 NOX PPM 422.98 CO DRY 5.5151 PER CENT CO2 DRY 11.002 O2 DRY 0.030253  
CORRECTED CONC. TO WET BASIS 4.6868 9.3497 0.025718

EMISSION RATE HC 0.59700 NOX 0.71262 CO 48.173  
EMISSION MASS/MODE 0.0029850 0.0035631 0.24086  
EMISSION MASS/RATED HP 1.8656E-05 2.2269E-05 0.0015054  
MODE EMIS./STD. CYCLE % 0.98191 1.4846 3.5843

CAL. FUEL AIR RATIO = 0.079515 MEAS. FUEL AIR RATIO = 0.077194 DIFF MEAS. & CAL. F/A PERCENT = 3.0063

CYL TEMP DEG.F. CYL-1 413.35 CYL-2 434.71 CYL-3 421.70 CYL-4 579.84

EXT GAS TEMP DEG.F EXT-1 1728.4 EXT-2 -253.23 EXT-3 858.29 EXT-4 1208.7 SEXT-1 1394.1 SEXT-2 1393.4

ENGINE OIL EOILT 183.87 SOILT 173.04 OILP 73.447 MANIFOLD PRESSURE = 27.886

DYNO COND. TORQUE 284.26 RPM 2624.4 CYL BACK PRESSURE = 29.192

INDUCTION AIR IAIRT1 57.502 IAIRT2 57.801 TAIRT1 100.38 TAIRT2 55.771

ORIFICE AIR TEMP 77.520 DELTAP 0.084908 ORFP 52.945 FL3W 309.43

CILL TEMP. = 78.200 HEATER TEMP = 79.109 COOLER TEMP = 51.835

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NASA-Lewis PRELIMINARY DATA 04/06/76 CADDEII REC 04/06/76 20:12:27.771 FAC SEX15 PGM C003 RDG 2892

LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 60 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BARMETRIC PRESSURE = 29.040 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	60.114	29.038	104.11	464.12	3.1270	14.375

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	73.769	5.5439	44.812	44.712	37.285	6.0540

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	61.142	2.9350	3.7811	9836.8	59.859	46.136

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	59.859	30.707	47.162	1.0830	65.838

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.080334	0.079796	1.1990	2345.8	2347.7	145.22	64.862

WET CORRECTION FACTOR = 0.85982 EXHAUST MOLE. WT. = 27.554 EXHAUST DENSITY = 0.071602 EXHAUST FLOW RATE = 7046.3

MEASURED CONC.	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1611.0	429.82	5.8292	10.791	0.085789
CORRECTED CONC. TO WET BASIS			5.0121	9.2779	0.073763

	HC	NOX	CO
EMISSION RATE	0.40751	0.36041	25.640
EMISSION MASS/MODE	0.040751	0.036041	2.5640
EMISSION MASS/RATED HP	0.00025470	0.00022526	0.016025
MODE EMIS./STD. CYCLE %	13.405	15.017	38.155

CAL. FUEL AIR RATIO = 0.080335 MEAS. FUEL AIR RATIO = 0.080334 DIFF MEAS. & CAL. F/A PERCENT = 0.0023001

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	337.02	345.99	357.39	609.38

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1699.9	-454.00	764.68	1084.7	1195.1	1194.9

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.475
	186.84	207.46	71.407	

DYNO COND.	TORQUE	RPM	CYL BACK PRESSURE = 29.072
	146.03	2319.8	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	59.852	60.114	190.42	57.010

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	78.466	1.0670	53.007	1462.1

CELL TEMP. = 78.554 HEATER TEMP = 104.39 COOLER TEMP = 55.183

NASA-LEWIS PRELIMINARY DATA 04/06/76 CADDELL REC 04/06/76 20:17:05.289 FAC SEX15 PGM C003 RDG 2893

LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 60 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.040 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.690	29.025	205.04	938.18	6.3137	14.721

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	72.444	5.3255	44.847	76.979	74.437	5.9706

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	62.916	3.0958	3.7216	10134.	62.165	46.736

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	62.165	39.950	47.108	1.0818	154.00

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.079343	0.078812	1.1842	2699.7	2702.0	285.39	146.70

WET CORRECTION FACTOR = 0.85334 EXHAUST MOLE. WT. = 27.733 EXHAUST DENSITY = 0.071808 EXHAUST FLOW RATE = 14189.

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	1284.3	399.48	6.0299	10.753	0.023762	
CORRECTED CONC. TO WET BASIS			5.1455	9.1760	0.020277	

	HC	NOX	CO
EMISSION RATE	0.65425	0.67455	53.007
EMISSION MASS/MODE	0.0032712	0.0033727	0.26504
EMISSION MASS/PATED HP	2.0445E-05	2.1080E-05	0.0016565
MODE EMIS./STD. CYCLE %	1.0761	1.4053	3.9440

CAL. FUEL AIR RATIO = 0.080800 MEAS. FUEL AIR RATIO = 0.079343 DIFF MEAS. & CAL. F/A PERCENT = 1.8372

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	416.14	437.31	423.66	652.29

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1193.7	-250.55	826.69	1235.1	1374.5	1373.6

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 27.871
	187.77	241.56	73.275	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.217
	292.54	2656.3	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	59.391	59.690	102.71	55.852

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	79.075	2.0204	53.063	1990.9

CEIL TEMP. = 80.214 HEATER TEMP = 80.422 COOLER TEMP = 51.546

NASA-LEWIS PRELIMINARY DATA 04/06/76 CADDELL REC 04/06/75 20:22:39.519 FAC SEX15 PGM C003 RDG 2895

LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 60 % MCDE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.040 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	61.565	29.043	104.25	465.18	3.1570	14.378

COMB. FUFL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	75.890	5.5430	44.756	46.122	36.877	6.0351

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	62.412	2.8470	3.7412	9669.9	57.274	46.331

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	57.274	0.22602	47.506	1.0909	66.742

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.079273	0.078739	1.1832	2351.8	2353.0	146.58	65.638

WET CORRECTION FACTOR = 0.85254 EXHAUST MOLE. WT. = 27.739 EXHAUST DENSITY = 0.071822 EXHAUST FLOW RATE = 7034.3

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM NOX PPM CO DRY CO2 DRY O2 DRY	
	1600.8 355.94 6.1475 10.684 0.11969	
CORRECTED CONC. TO WET BASIS		5.2410 9.1087 0.10204

EMISSION RATE	HC	NOX	CO
	0.40424	0.29794	26.765
EMISSION MASS/MODE	0.040424	0.029794	2.6765
EMISSION MASS/RATED HP	0.00025265	0.00018622	0.016728
MODE EMIS./STD. CYCLE %	13.297	12.414	39.829

CAL. FUEL AIR RATIO = 0.080908 MEAS. FUEL AIR RATIO = 0.079273 DIFF MEAS. & CAL. F/A PERCENT = 2.0615

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	338.45	349.22	357.68	569.18

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1523.0	-454.00	790.13	1063.8	1184.8	1184.9

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.424
	186.94	122.64	71.431	

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.143
	148.49	2292.3	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	61.214	61.565	84.994	56.633

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	79.905	2.0193	53.014	1988.9

CELL TEMP. = 81.060 HEATER TEMP = 94.313 COOLER TEMP = 51.726



NASA-LEWIS PRELIMINARY DATA 04/06/76 CADDEJJ REC 04/06/76 20:30:38.744 FAC SEX15 PGM C003 RDG 2896  
 LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 60 % MODE = 3.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BARMETRIC PRESSURE = 29.040 RATED HP. = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	58.488	29.029	204.32	935.11	6.3499	14.724	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	71.661	5.3654	44.867	72.621	70.111	5.9991	
COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	61.403	3.0227	3.9288	10000.	65.485	46.975	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	65.485	7.3487	47.534	1.0915	153.84		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	RHP
	0.074976	0.074470	1.1190	2698.9	2701.5	285.58	146.75
WET CORRECTION FACTOR = 0.85119				EXHAUST MOLE. WT. = 28.091		EXHAUST DENSITY = 0.072735	
				EXHAUST FLOW RATE = 13907.			
MEASURED CONC.	PART PER MILLION WET			PER CENT			
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	1080.5	666.57	4.4928	11.538	0.067787		
CORRECTED CONC. TO WET BASIS				3.8242	9.8211	0.057700	
	HC	NOX	CO				
EMISSION RATE	0.53948	1.1032	38.613				
EMISSION MASS/MODE	0.0026974	0.0055158	0.19306				
EMISSION MASS/RATED HP	1.6859E-05	3.4474E-05	0.0012066				
MODE EMIS./STD. CYCLE %	0.88729	2.2983	2.8730				
CAL. FUEL AIR RATIO = 0.076958				MEAS. FUEL AIR RATIO = 0.074976		DIFF MEAS. & CAL. F/A PERCENT = 2.6428	
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	420.93	434.92	438.12	581.06			
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	957.55	936.49	946.97	1235.9	1396.0	1394.5	
ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 27.942			
	189.13	164.38	73.179				
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.185				
	285.20	2625.7					
INDUCTION AIR	IAIRT1	IAIRT2	IAIRT1	IAIRT2			
	58.144	58.488	83.913	55.766			
ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW			
	77.705	0.041404	52.978	169.26			
CELL TEMP. = 79.027	HEATER TEMP = 79.282		COOLER TEMP = 51.501				

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NASA-LEWIS		PRELIMINARY DATA		04/06/76	CADDELL	REC 04/06/76 20:35:51.355		FAC SEX15	PGM C003	RDG 2898	
LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 60 %				MODE = 5.0000		NO. SCANS = 5					
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.040		RATED HP. = 160.00		HC RATIO = 2.1250			
COMB. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL					
	59.400	29.042	104.30	466.64	3.1606	14.376					
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP					
	74.462	5.5487	44.793	46.576	37.531	6.0624					
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT					
	60.105	2.9239	3.6637	9815.9	61.726	46.276					
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP						
	61.726	13.043	47.412	1.0887	67.253						
ENG. COND.	E/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP				
	0.080428	0.079887	1.2004	2351.5	2353.3	148.12	66.318				
WET CORRECTION FACTOR = 0.86395		EXHAUST MOLE. WT. = 27.646		EXHAUST DENSITY = 0.071583		EXHAUST FLOW RATE = 7087.3					
MEASURED CONC.	PART PER MILLION WET		PER CENT								
	HC PPM	NOX PPM	CO DRY	CO2 DRY	NO2 DRY						
	1560.6	460.65	5.5171	10.930	0.12145						
CORRECTED CONC. TO WET BASIS			4.7665	9.4431	0.10493						
EMISSION RATE	HC	NOX	CO								
	0.39706	0.38850	24.525								
EMISSION MASS/MODE	0.039706	0.038850	2.4525								
EMISSION MASS/RATED HP	0.00024816	0.00024281	0.015328								
MODE EMIS./STD. CYCLE %	13.061	16.188	36.496								
CAL. FUEL AIR RATIO = 0.079454	MEAS. FUEL AIR RATIO = 0.080428		DIFF MEAS.& CAL. F/A PERCENT = -1.2115								
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4							
	338.14	352.99	360.87	618.78							
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2					
	923.16	-454.00	874.54	1066.9	1212.2	1212.9					
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.487							
	187.07	222.09	71.315								
DYNO COND.	TORQUE	RPM	CYL.BACK PRESSURE = 29.113								
	152.27	2328.4									
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2							
	59.066	59.400	141.12	55.149							
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW							
	78.527	1.0898	53.068	1477.3							
CYLL TEMP. = 79.834	HEATER TEMP = 78.657		COOLER TEMP = 46.410								

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NASA-LEWIS PRELIMINARY DATA 04/06/76 CADDELL REC 04/06/76 20:39:41.393 FAC SEX15 PGM C003 R0G 2899

LEANOUT 25 BTDC TO CL APP 59 CIG HUM = 60 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.040 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.996	29.044	203.00	928.59	6.3539	14.718

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	73.209	5.3402	44.826	72.959	70.387	5.9328

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	62.799	2.9962	3.7498	9951.2	62.494	47.166

RFL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	62.494	27.151	47.898	1.0999 152.88

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.075799	0.075284	1.1313	2691.5	2694.4	284.23	145.66

WET CORRECTION FACTOR = 0.85502 EXHAUST MOLE. WT. = 28.023 EXHAUST DENSITY = 0.072558 EXHAUST FLOW RATE = 13855.

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM NOX PPM CO DRY CO2 DRY O2 DRY	
	1096.2 692.95 4.5078 11.468 0.076088	
CORRECTED CONC. TO WET BASIS		
	3.8543 9.8052 0.065057	

EMISSION RATE	HC	NOX	CO
	0.54527	1.1425	38.771
EMISSION MASS/MODE	0.0027264	0.0057127	0.19385
EMISSION MASS/RATED HP	1.7040E-05	3.5705E-05	0.0012116
MODE EMIS./STD. CYCLE %	0.89683	2.3803	2.8847

CAL. FUEL AIR RATIO = 0.077016 MEAS. FUEL AIR RATIO = 0.075799 DIFF MEAS. & CAL. F/A PERCENT = 1.6050

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	417.00	429.43	433.01	589.79

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1224.5	-454.00	1101.9	1355.0	1399.5	1398.1

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 27.806
	187.72	212.25	73.379	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.199
	284.18	2641.9	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	59.698	59.996	78.931	55.801

ORIFICE AIR	TFMP	DELTAP	ORFP	FLOW
	79.058	1.0472	53.002	1447.8

CELL TEMP. = 79.579 HEATER TFMP = 81.095 COOLER TEMP = 52.051

NASA-Lewis PRELIMINARY DATA 04/06/76 CADDELL REC 04/06/76 20:48:21.222 FAC SEX15 PGM C003 RDG 2901

LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 60 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.040 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	58.515	29.041	104.78	468.21	3.2224	14.379

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	73.245	5.5463	44.826	49.293	37.573	6.0537

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	58.795	2.8888	3.7301	9749.5	64.746	46.701

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	64.746	17.830	48.177	1.1063	65.276

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.080248	0.079699	1.1977	2357.6	2360.6	143.51	64.418

WET CORRECTION FACTOR = 0.86069 EXHAUST MOLE. WT. = 27.661 EXHAUST DENSITY = 0.071620 EXHAUST FLOW RATE = 7107.0

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	CO DRY	O2 DRY
	1637.2	481.19	5.7626	10.803	0.13313	0.11200
CORRECTED CONC. TO WET BASIS			4.9598	9.2978	0.11200	

	HC	NOX	CO
EMISSION RATE	0.41771	0.40696	25.591
EMISSION MASS/MODE	0.041771	0.040696	2.5591
EMISSION MASS/RATED HP	0.00026107	0.00025435	0.015994
MODE EMIS./STD. CYCLE %	13.740	16.956	38.081

CAL. FUEL AIR RATIO = 0.080048 MEAS. FUEL AIR RATIO = 0.080248 DIFF MEAS. & CAL. F/A PERCENT = -0.24905

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	324.69	339.54	350.99	616.56

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1358.3	-454.00	945.27	1085.6	1189.4	1190.1

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.453
	186.78	297.99	71.531	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.105
	150.19	2292.6	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	58.171	58.515	114.91	55.827

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	77.051	2.0395	53.047	2003.5

CELL TEMP. = 77.687 HEATER TEMP = 83.018 COOLER TEMP = 51.068

NASA-LEWIS PRELIMINARY DATA 04/06/76 CADDETT REC 04/06/76 20:52:35.882 FAC SEX15 PGM C003 RDG 2902  
 LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 60 % MODE = 3.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.040 RATED HP. = 160.00 HC RATIO = 2.1250  

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	58.768	29.059	201.78	922.48	6.3862	14.715
COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	72.266	5.4131	44.851	68.382	65.641	6.0060
COOLING AIR	TEMP	INLET-DOOD	DEL-DOOD	FLOW	REL-HUM	DEW-POINT
	61.556	2.9934	3.6557	9946.0	66.038	47.466
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP	
	66.038	30.277	48.460	1.1128	151.91	
ENG. COND.	F/A DRY	F/A WFT	EQU. RATIO	RPM-1	RPM-2	TORQUE BHP
	0.071155	0.070667	1.0620	2690.9	2693.1	282.99 144.99
WET CORRECTION FACTOR = 0.85514		EXHAUST MOLE. WT. = 28.416		EXHAUST DENSITY = 0.073576		EXHAUST FLOW RATE = 13516.
MEASURED CONC.	PART PER MILLION WET		PER CENT			
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	966.00	1413.0	2.6929	12.356	0.13333	
CORRECTED CONC. TO WFT BASIS			2.3028	10.566	0.11402	
EMISSION RATE	HC	NOX	CO			
	0.46875	2.2729	22.598			
EMISSION MASS/MODE	0.0023438	0.011364	0.11299			
EMISSION MASS/RATED HP	1.4648E-05	7.1027E-05	0.00070618			
MODE EMIS./STD. CYCLE %	0.77097	4.7351	1.6814			
CAL. FUEL AIR RATIO = 0.072736		MEAS. FUEL AIR RATIO = 0.071156		DIFF MEAS. & CAL. F/A PERCENT = 2.2194		
CYL TEMP DEG. F.	CYL-1	CYL-2	CYL-3	CYL-4		
	424.61	430.60	434.88	541.43		
EXT GAS TEMP DEG. F.	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1104.5	-245.57	1272.1	1451.9	1429.1	1427.8
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 27.700		
	187.96	202.95	73.283			
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.204			
	279.15	2600.5				
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2		
	58.479	58.768	55.604	55.910		
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW		
	77.670	1.0602	53.005	1458.5		
CELL TEMP. = 78.969	HEATER TEMP = 78.705		COOLER TEMP = 51.826			

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NASA-LEWIS PRELIMINARY DATA 04/06/76 CADDEII REC 04/06/76 20:59:46.238 FAC SEX15 PGM C003 RDG 2904

LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 60 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.040 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	60.051	29.032	104.60	467.82	3.2066	14.380

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	75.562	5.5434	44.764	47.690	36.961	6.0591

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	60.438	2.9331	3.7456	9833.1	61.046	46.596

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	61.046	19.284	47.981	1.1018	67.294

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.079006	0.078468	1.1792	-2355.1	2357.8	147.84	66.295

WET CORRECTION FACTOR = 0.86365 EXHAUST MOLE. WT. = 27.760 EXHAUST DENSITY = 0.071878 EXHAUST FLOW RATE = 7067.4

MEASURED CONC.	PART PER MILLION WET		PER CENT
	HC PPM	NOX PPM	CO DRY
	1506.2	563.40	5.0141
CORRECTED CONC. TO WET BASIS			CO DRY
			11.136
			0.13489
			0.11650

EMISSION RATE	HC	NOX	CO
	0.38216	0.47382	22.219
EMISSION MASS/MODE	0.038216	0.047382	2.2219
EMISSION MASS/RATED HP	0.00023885	0.00029614	0.013887
MODE EMIS./STD. CYCLE %	12.571	19.743	33.064

CAL. FUEL AIR RATIO = 0.078247 MEAS. FUEL AIR RATIO = 0.079006 DIFF MEAS. & CAL. F/A PERCENT = -0.96032

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	341.09	354.03	357.18	603.74

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1171.3	-410.08	1196.5	1203.4	1222.2	1223.0

ENGINE OIL	FILTY	SOILT	OILP	MANIFOLD PRESSURE = 18.681
	186.92	195.94	71.343	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.015
	144.95	2320.4	

INDUCTION AIR	TAIRT1	TAIPT2	TAIRT1	TAIPT2
	59.707	60.051	114.35	55.419

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	78.713	1.0502	53.008	1450.3

CELL TEMP. = 80.628 HEATER TEMP = 91.925 COOLER TEMP = 49.517

NASA-LEWIS PRELIMINARY DATA 04/06/76 CADDET REC 04/06/76 21:06:17.990 FAC SEX15 PGM C003 RDG 2905

LEANOUT 25 BTDC TO CL APP 59 DEG HJM = 60 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.040 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	58.506	29.022	200.37	915.89	6.1292	14.709

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	72.427	5.4026	44.847	66.890	64.552	5.9445

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT
	61.286	2.9508	3.5037	9866.4	64.437	46.566

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	64.437	29.715	46.844	1.0757 149.52

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.070600	0.070131	1.0537	2703.5	2706.0	276.99	142.58

WET CORRECTION FACTOR = 0.85439 EXHAUST MOLE. WT. = 28.464 EXHAUST DENSITY = 0.073701 EXHAUST FLOW RATE = 13387.

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	907.39	1587.3	2.6011	12.418	0.15860
CORRECTED CONC. TO WET BASIS			2.2224	10.610	0.13550

	HC	NOX	CO
EMISSION RATE	0.43611	2.5287	21.600
EMISSION MASS/MODE	0.0021805	0.012644	0.10800
EMISSION MASS/RATED HP	1.3628E-05	7.9022E-05	0.00067501
MODE EMIS./STD. CYCLE %	0.71728	5.2682	1.6072

CAL. FUEL AIR RATIO = 0.072412 MEAS. FUEL AIR RATIO = 0.070500 DIFF MEAS. & CAL. F/A PERCENT = 2.5666

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	418.40	434.58	431.03	719.80

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1201.5	203.22	1258.2	1375.9	1426.8	1424.6

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	189.22	247.60	73.527	27.574

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	271.82	2659.9	29.184

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	58.226	58.506	81.213	55.956

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	77.307	2.0406	53.047	2003.6

CELL TEMP. = 79.499 HEATER TEMP = 80.234 COOLER TEMP = 52.465

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NASA-LEWIS		PRELIMINARY DATA		04/06/76	CADDELI	REC 04/06/76 21:25:09.603	FAC SEX15	PGM C003	RDG 2908
LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 60 %				MODE = 5.0000		NO. SCANS = 5			
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.050			RATED HP. = 160.00		HC RATIO = 2.1250	
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL			
	61.052	29.046	105.31	471.20	3.1351	14.387			
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP			
	77.148	5.5707	44.723	44.950	33.393	6.0588			
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT			
	61.142	2.8830	3.6477	9738.4	57.231	45.830			
REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP					
	57.231	0.25403	46.574	1.0695		67.067			
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP		
	0.070869	0.070401	1.0577	2352.5	2355.1	147.38	66.015		
WET CORRECTION FACTOR = 0.85825		EXHAUST MOLE. WT. = 28.441		EXHAUST DENSITY = 0.073640		EXHAUST FLOW RATE = 6894.7			
MEASURED CONC.	PART PER MILLION WET		PER CENT						
	HC PPM	NOX PPM	CO DRY	CO2 DRY	02 DRY				
	1028.2	1273.2	1.7615	12.712	0.35894				
CORRECTED CONC. TO WET BASIS			1.5294	11.037	0.31164				
EMISSION RATE	HC	NOX	CO						
	0.25450	1.0446	7.6554						
EMISSION MASS/MODE	0.025450	0.10446	0.76554						
EMISSION MASS/RATED HP	0.00015906	0.00065290	0.0047846						
MODE EMIS./STD. CYCLE %	8.3716	43.526	11.392						
CAL. FUEL AIR RATIO = 0.070048		MEAS. FUEL AIR RATIO = 0.070869		DIFF MEAS. & CAL. F/A PERCENT = -1.1591					
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4					
	340.31	346.45	350.64	613.25					
EXT GAS TEMP DEG.F	FXT-1	FXT-2	FXT-3	FXT-4	SEXT-1	SEXT-2			
	1211.9	200.40	1219.9	1137.1	1206.1	1206.4			
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.707					
	182.04	296.03	71.439						
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.139						
	146.49	2333.5							
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2					
	60.735	61.052	93.523	55.621					
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW					
	79.305	0.10281	53.035	358.40					
CELL TEMP. = 80.364	HEATER TEMP = 77.440		COOLER TEMP = 48.497						

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NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDEII REC 04/07/76 17:10:29.909 FAC SEX15 PGM C003 RDG 2913

LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 80 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.150 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.075	29.159	172.32	782.72	6.7446	14.640

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	71.090	5.3987	44.883	68.206	65.500	6.0126

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	62.187	3.0479	3.9950	10046.	80.669	53.146

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	80.669	21.548	60.318	1.3851	122.21

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.083682	0.082967	1.2490	2432.5	2434.6	259.68	120.27

WET CORRECTION FACTOR = 0.85603 EXHAUST MOLE. WT. = 27.391 EXHAUST DENSITY = 0.070922 EXHAUST FLOW RATE = 12055.

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	1568.1	755.16	7.3804	10.2820	0.12341
CORRECTED CONC. TO WET BASIS			6.3178	8.8014	0.10564

	HC	NOX	CO
EMISSION RATE	0.67861	1.0833	55.293
EMISSION MASS/MODE	0.056551	0.090275	4.6078
EMISSION MASS/RATED HP	0.00035344	0.00056422	0.028798
MCDE EMIS./STD. CYCLE %	18.602	37.615	68.568

CAL. FUEL AIR RATIO = 0.083576 MEAS. FUEL AIR RATIO = 0.083682 DIFF MEAS. & CAL. F/A PERCENT = -0.12735

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	355.91	376.09	406.92	622.93

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1274.2	-454.00	470.12	995.51	1249.6	1249.6

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	186.99	217.17	71.547	26.567

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	242.52	2348.8	29.229

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	58.705	59.075	97.116	55.236

ORIFICE AIR	TEMP	DELTAP	ORFD	FLOW
	80.655	0.094109	53.283	334.45

CELL TEMP. = 79.861 HEATER TEMP = 79.546 COOLER TEMP = 50.248

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NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDELL REC 04/07/76 17:14:45.979 FAC SEX15 PGM C003 RDG 2914

LEANOUT 25 BTDC TO CI APP 59 DEG HUM = 80 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.160 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	60.222	29.147	105.39	472.02	4.0655	14.441

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	74.444	5.5737	44.794	41.253	37.078	6.1200

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	62.367	3.0067	3.8497	9970.7	76.349	52.761

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	76.349	27.105	60.291	1.3845	66.290

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.078551	0.077881	1.1724	2352.9	2355.2	145.21	65.056

WET CORRECTION FACTOR = 0.83754 EXHAUST MOLE. WT. = 27.797 EXHAUST DENSITY = 0.071973 EXHAUST FLOW RATE = 7129.9

MEASURED CONC.	PAPT PER MILLION WET	PER CENT			
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1653.8	277.25	6.9044	10.7850	0.12575
CORRECTED CONC. TO WET BASIS			5.7827	9.0326	0.10474

EMISSION RATE	HC	NOX	CO
	0.42330	0.23523	29.933
EMISSION MASS/MODE	0.042330	0.023523	2.9933
EMISSION MASS/RATED HP	0.00026456	0.00014702	0.018708
MODE EMIS./STD. CYCLE %	13.924	9.8013	44.543

CAL. FUEL AIR RATIO = 0.082174 MEAS. FUEL AIR RATIO = 0.078551 DIFE MEAS. & CAL. F/A PERCENT = 4.6117

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	320.86	332.95	338.31	403.08

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1159.0	-454.00	502.20	816.11	1114.3	1114.2

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.553
	186.07	372.39	71.067	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.234
	149.44	2288.1	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	59.843	60.222	18.43	55.443

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	81.289	1.0638	53.278	1456.1

CELL TEMP. = 79.967 HEATED TEMP = 79.400 COOLER TEMP = 49.183

NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDEII REC 04/07/76 17:17:54.358 FAC SEX15 PGM C003 RDG 2915

LEANOUT. 25 BTDC TO CL APP. 59 DEG HUM = 80 % MODE = 3.0000 ND. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.160 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.789	29.168	208.88	958.90	8.2849	14.801

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	71.652	4.4290	44.868	82.109	79.979	4.8515

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	63.033	2.9494	3.9884	9863.8	79.713	53.516

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	79.713	9.6690	60.480	1.3888	154.30

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.083407	0.082692	1.2449	2702.1	2704.4	286.40	147.35

WET CORRECTION FACTOR = 0.84731 EXHAUST MOLE. WT. = 27.412 EXHAUST DENSITY = 0.070977 EXHAUST FLOW RATE = 14753.

MEASUREL CONC.	PART PER MILLION WET			PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1535.3	259.68	8.0830	9.89180	0.060546
CORRECTED CONC. TO WET BASIS			6.8489	8.3814	0.051302

	HC	NOX	CO
EMISSION RATE	0.81315	0.45591	73.359
EMISSION MASS/MODE	0.0040658	0.0022795	0.36680
EMISSION MASS/RATED HP	2.5411E-05	1.4247E-05	0.0022925
MODE EMIS./STD. CYCLE %	1.3374	0.94981	5.4583

CAL. FUEL AIR RATIO = 0.085602 MEAS. FUEL AIR RATIO = 0.083407 DIFF MEAS. & CAL. F/A PERCENT = 2.6314

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	401.38	421.22	401.17	338.98

FXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1671.3	-454.00	408.30	931.16	1300.4	1298.9

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE =
	187.64	177.27	73.095	28.069

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE =
	280.61	2641.9	29.357

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	59.455	59.789	80.702	55.372

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	81.307	1.0773	53.244	1465.1

CELL TEMP. = 81.271 HEATER TEMP = 79.345 COOLER TEMP = 49.472

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NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDEII REC 04/07/76 17:20:23.983 FAC SEX15 PGM C003 RDG 2916

LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 80 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.160 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS. TOTAL
	57.484	29.160	172.25	782.82	6.7770	14.653

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	69.708	5.4353	44.919	65.652	64.278	6.0891

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	60.583	3.0341	3.9045	10021.	85.883	53.296

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	85.883	0.24802	60.600	1.3916	120.78

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.082111	0.081406	1.2255	2430.5	2432.5	257.27	119.06

WET CORRECTION FACTOR = 0.85022 EXHAUST MOLE. WT. = 27.513 EXHAUST DENSITY = 0.071238 EXHAUST FLOW RATE = 11986.

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	1613.2	745.07	7.2864	10.3390	0.11021	
CORRECTED CONC. TO WET BASIS			6.1950	8.7901	0.093703	

	HC	NOX	CO
EMISSION RATE	0.69415	1.0627	53.909
EMISSION MASS/MODE	0.057846	0.088562	4.4924
EMISSION MASS/RATED HP	0.00036154	0.00055351	0.028077
MODE EMIS./STD. CYCLE %	19.028	36.901	66.851

CAL. FUEL AIR RATIO = 0.083415 MEAS. FUEL AIR RATIO = 0.082111 DIFF. MEAS. & CAL. F/A PERCENT = 1.5888

CYL TEMP. DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	361.33	385.80	406.14	411.88

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1437.1	1454.00	483.99	1008.1	1255.4	1255.4

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD. PRESSURE = 26.646
	187.47	178.03	71.231	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.291
	249.09	2386.0	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	57.122	57.484	67.572	55.370

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	78.783	2.0584	53.272	2009.0

CELL TEMP. = 78.483 HEATER TEMP. = 79.261 COOLER TEMP. = 50.798

NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDEII REC 04/07/76 17:23:10.457 FAC SEX15 PGM C003 RDG 2917

LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 80 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.160 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	58.497	29.148	105.73	473.02	4.0881	14.440

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPI
	72.293	5.5553	44.851	44.396	39.826	6.0771

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	60.826	3.0031	3.8680	9964.0	81.471	52.851

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	81.471	11.617	60.499	1.3893 66.214

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.084195	0.083474	1.2566	2354.8	2356.5	145.23	65.117

WET CORRECTION FACTOR = 0.85717 EXHAUST MOLE. WT. = 27.351 EXHAUST DENSITY = 0.070819 EXHAUST FLOW RATE = 7299.3

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM NOX PPM CO DRY CO2 DRY O2 DRY	
	2055.5 239.30 7.3985 10.0720 0.12669	
CORRECTED CONC. TO WET BASIS		6.3418 8.6332 0.10860

EMISSION RATE	HC	NOX	CO
	0.53864	0.20786	33.607
EMISSION MASS/MODE	0.053864	0.020786	3.3607
EMISSION MASS/RATED HP	0.00033665	0.00012992	0.021004
MODE EMIS./STD. CYCLE %	17.718	8.6610	50.010

CAL. FUEL AIR RATIO = 0.084145 MEAS. FUEL AIR RATIO = 0.084195 DIFF MEAS. & CAL. F/A PERCENT = -0.060104

CYL TEMP. DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	323.05	344.29	349.04	430.43

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1466.6	-454.00	572.07	941.30	1123.0	1123.1

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.726
	186.70	254.01	70.935	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.212
	146.79	2313.9	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	58.108	58.497	89.523	55.905

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	79.058	2.0219	53.190	1991.6

CELL TEMP. = 78.315 HEATER TEMP = 79.199 COOLER TEMP = 50.735

NASA-LEWIS.....PRELIMINARY DATA.....04/07/76.....CADDEII.....REC 04/07/76 17:26:42.058.....FAC SEX15.....PGM C003.....RDG 2918

LEANOUT .25 BTDC TO CL APP 59 DEG HUM = 80 %.....MODE = 3.0000.....NO. SCANS = 5

ENGINE TIMING = 25.000.....DEG.....BARDMETRIC PRESSURE = 29.160.....RATED HP. = 160.00.....HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	58.569	29.144	207.54	951.35	8.2772	14.788

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	70.101	4.3246	44.909	82.082	79.964	4.2361

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	61.782	3.0878	3.9164	10120.	83.771	53.681

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	83.771	30.283	60.903	1.3985	153.57

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.084053	0.083328	1.2545	2698.6	2700.9	285.32	146.61

WET CORRECTION FACTOR = 0.84856.....EXHAUST MOLE. WT. = 27.362.....EXHAUST DENSITY = 0.070847.....EXHAUST FLOW RATE = 14673.

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM.....NOX PPM.....CO DRY.....CO2 DRY.....O2 DRY	
	1571.8.....223.76.....8.2032.....9.8559D.....0.064546	
CORRECTED CONC. TO WET BASIS	6.9609.....8.3634.....0.054772	

	HC	NOX	CO
EMISSION RATE	0.82797	0.39072	74.155
EMISSION MASS/MODE	0.0041399	0.0019536	0.37077
EMISSION MASS/RATED HP	2.5874E-05	1.2210E-05	0.0023173
MODE EMIS./STD. CYCLE %	1.3618	0.91401	5.5175

CAL. FUEL AIR RATIO = 0.085871.....MEAS. FUEL AIR RATIO = 0.084053.....DIFF. MEAS. & CAL. F/A PERCENT = 2.1621

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	399.10	425.70	401.75	337.45

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1239.8	-454.00	664.59	1038.4	1302.7	1301.2

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.112
	187.56	163.06	73.043	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.328
	283.71	2616.4	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	58.289	58.569	89.678	55.642

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	79.614	1.0543	53.270	1451.9

CELL TEMP. = 79.720.....HEATED TEMP. = 72.000

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NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDEII REC 04/07/76 17:51:32.604 FAC SEX15 PGM C003 RDG 2919

LEANOUT 25. BTDC TO CL APP 59 DEG HUM = 80.2 MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BARDOMETRIC PRESSURE = 29.160 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS.	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.247	29.166	208.96	958.70	8.1540	14.802

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	71.296	5.3729	44.877	78.930	76.718	5.9511

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	62.349	3.0701	3.9914	10087.	80.029	53.096

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	80.029	16.992	59.537	1.3672	157.51

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.080022	0.079347	1.1944	2701.6	2703.9	292.52	150.47

WET CORRECTION FACTOR = 0.84704 EXHAUST MOLE. WT. = 27.679 EXHAUST DENSITY = 0.071667 EXHAUST FLOW RATE = 14561.

MEASURED CONC.	PART PER MILLION WET	CO DRY	PER CENT	O2 DRY
	HC PPM	6.6351	10.6230	0.026423
	NOX PPM	5.6202	8.9981	0.022381

EMISSION RATE	HC	NOX	CO
	0.73172	0.50017	59.415
EMISSION MASS/MODE	0.0036586	0.0025009	0.29707
EMISSION MASS/RATED HP	2.2866E-05	1.5630E-05	0.0018567
MODE EMIS./STD. CYCLE %	1.2035	1.0420	4.4207

CAL. FUEL AIR RATIO = 0.082104 MEAS. FUEL AIR RATIO = 0.080022 DIFF MEAS. & CAL. F/A PERCENT = 2.6014

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	411.43	428.95	407.87	242.69

EXT GAS TEMP DEG.F	FXT-1	FXT-2	FXT-3	EXT-4	SEXT-1	SEXT-2
	1272.3	11.888	805.43	1055.0	1348.2	1347.1

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	187.90	186.21	72.795	28.209

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	294.58	2644.3	29.338

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	58.922	59.247	163.24	55.819

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	79.675	0.093209	53.258	332.26

CELL TEMP. = 80.875 HEATER TEMP = 87.383 COOLER TEMP = 48.362

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NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDE11 REC 04/07/76 17:54:04.904 FAC SEX15 PGM C003 RDG 2920

LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 80 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.160 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.897	29.153	168.58	763.58	6.5368	14.616

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	72.435	5.4626	44.847	59.073	59.316	6.0861

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	62.898	3.0407	3.8981	10033.	77.707	52.926

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	77.707	24.794	59.925	1.3761	122.93

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.077681	0.077022	1.1594	2436.1	2438.2	260.61	120.88

WET CORRECTION FACTOR = 0.84397 EXHAUST MOLE. WT. = 27.868 EXHAUST DENSITY = 0.072156 EXHAUST FLOW RATE = 11494.

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1371.8	383.62	6.0059	10.8930	0.056606
CORRECTED CONC. TO WET BASIS			5.0688	9.1937	0.047773

EMISSION RATE	HC	NOX	CO
	0.56611	0.52475	42.300
EMISSION MASS/MODE	0.047176	0.043729	3.5250
EMISSION MASS/RATED HP	0.00029485	0.00027331	0.022031
MODE EMIS./STD. CYCLE %	15.518	18.220	52.456

CAL. FUEL AIR RATIO = 0.080541 MEAS. FUEL AIR RATIO = 0.077681 DIFF. MEAS. & CAL. F/A PERCENT = 3.6814

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	389.50	407.13	404.15	679.68

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1071.8	-454.00	773.37	1091.7	1283.1	1283.7

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 26.409
	187.27	162.92	71.051	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.324
	264.80	2343.5	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	59.536	59.897	107.62	55.870

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	80.082	2.0185	53.268	1988.2

CELL TEMP. = 81.069 HEATER TEMP = 81.463 COOLER TEMP = 51.005

NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDEII REC 04/07/76 17:57:50.688 FAC SEX15 PGM C003 RDG 2921

LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 80 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.160 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	60.899	29.169	105.10	470.03	3.9949	14.436

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	75.296	5.5716	44.771	43.526	39.331	6.1497

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	63.123	2.9785	3.7633	9918.2	73.541	52.396

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	73.541	23.694	59.495	1.3662 66.280

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.083677	0.082972	1.2489	2351.0	2353.2	145.22	65.007

WET CORRECTION FACTOR = 0.85400 EXHAUST MOLE. WT. = 27.391 EXHAUST DENSITY = 0.070923 EXHAUST FLOW RATE = 7238.3

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY
	2017.5	233.30	7.4552	10.227
CORRECTED CONC. TO WET BASIS			8.7334	0.11573
				0.098834

	HC	NOX	CO
EMISSION RATE	0.52425	0.20096	33.457
EMISSION MASS/MODE	0.052425	0.020096	3.3457
EMISSION MASS/RATED HP	0.00032766	0.00012560	0.020910
MODE EMIS./STD. CYCLE %	17.245	8.3732	49.787

CAL. FUEL AIR RATIO = 0.084060 MEAS. FUEL AIR RATIO = 0.083677 DIFF MEAS & CAL. F/A PERCENT = 0.45688

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	327.90	341.77	340.06	413.47

EXT GAS TEMP DEG.F	FXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1202.1	454.00	736.28	895.51	1126.6	1126.9

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.500
	186.71	190.42	70.839	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.193
	136.96	2292.5	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	60.547	50.899	55.860	56.093

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	80.566	1.0603	53.324	1454.7

CELL TEMP. = 81.817 HEATER TEMP = 80.019 COOLER TEMP = 50.338

NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDEII REC. 04/07/76 18:00:14.721 FAC SEX15 PGM C003 RDG 2922

LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 80.2 MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.160 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	60.619	29.099	210.21	965.57	8.1906	14.817

COMB. FUFL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	73.191	5.2913	44.827	79.933	77.576	5.9163

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	63.500	2.9989	3.8143	9956.3	76.086	53.051

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	76.086	7.1127	59.379	1.3635	158.60

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.080342	0.079666	1.1991	2705.5	2707.8	292.90	150.89

WET CORRECTION FACTOR = 0.84740 EXHAUST MOLE. WT. = 27.653 EXHAUST DENSITY = 0.071601 EXHAUST FLOW RATE = 14683.

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY
	1427.7	357.26	6.8171	10.5510
CORRECTED CONC. TO WET BASIS			CO DRY	O2 DRY
			5.7768	0.084108
			8.9411	0.071274

EMISSION RATE	HC	NOX	CO
	0.75261	0.62424	61.581
EMISSION MASS/MODE	0.0037630	0.0031212	0.30791
EMISSION MASS/RATED HP	2.3519E-05	1.9507E-05	0.0019244
MODE EMIS./STD. CYCLE %	1.2378	1.3005	4.5819

CAL. FUEL AIR RATIO = 0.082313 MEAS. FUEL AIR RATIO = 0.080342 DIFF MEAS. & CAL. F/A PERCENT = 2.4539

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	397.45	416.57	400.12	383.16

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SFXT-1	SEXT-2
	1300.2	-129.10	788.88	1132.0	1319.0	1317.2

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.157
	187.39	232.49	73.695	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.336
	284.86	2672.7	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	60.294	60.619	78.430	55.739

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	80.901	2.0069	53.254	1981.3

CELL TEMP. = 82.618 HEATER TEMP = 79.637 COOLER TEMP = 51.068

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NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDEII REC 04/07/76 18:02:43.710 FAC SEX15 PGM C003 RDG 2923

LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 80 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.160 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	58.135	29.164	168.97	765.43	6.5306	14.622

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	70.823	5.4701	44.890	62.818	60.552	6.0372

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	61.124	3.0283	3.9485	10010.	82.518	52.846

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	82.518	13.929	59.723	1.3715 121.88

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.079108	0.078439	1.1807	2432.6	2435.0	259.27	120.09

WET CORRECTION FACTOR = 0.84845 EXHAUST MOLE. WT. = 27.752 EXHAUST DENSITY = 0.071857 EXHAUST FLOW RATE = 11585.

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM NOX PPM CO DRY CO2 DRY O2 DRY	
	1439.1 524.81 6.2270 10.7980 0.10181	
CORRECTED CONC. TO WET BASIS		5.2833 9.1612 0.086381

EMISSION RATE	HC	NOX	CO
EMISSION MASS/MODE	0.59858	0.72356	44.439
EMISSION MASS/RATED HP	0.049881	0.060296	3.7032
MODE EMIS./STD. CYCLE %	0.00031176	0.00037685	0.023145
	16.408	25.124	55.107

CAL. FUEL AIR RATIO = 0.080910 MEAS. FUEL AIR RATIO = 0.079108 DIFF MEAS. & CAL. F/A PERCENT = 2.2767

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	379.75	407.30	402.76	308.27

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1426.3	-454.00	815.70	1072.5	1269.2	1269.1

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 26.447
	187.35	257.32	70.927	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.299
	254.36	2369.3	

INDUCTION AIR	IAIRT1	IAIPT2	TAIRT1	TAIRT2
	57.819	58.135	74.772	56.032

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	78.156	2.0347	53.237	1999.2

CELL TEMP. = 79.481 HEATER TEMP = 79.407 COOLER TEMP = 52.663

NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDEII REC 04/07/76 18:05:33.996 FAC SEX15 PGM C003 RDC 2924

LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 80 % MODE = 5.0000 ND. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.160 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	58.542	29.165	105.55	472.41	4.0052	14.439

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	72.827	5.5512	44.837	44.817	40.915	6.0486

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	60.691	2.9358	3.7808	9838.3	79.811	52.336

REL-HUM	1	2	HUMIDITY	H2O VAPOR	CORRECTED HP
	79.811	47.513	59.348	1.3628	66.880

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.086609	0.085881	1.2927	2353.0	2355.4	146.85	65.791

WET CORRECTION FACTOR = 0.85699 EXHAUST MOLE. WT. = 27.158 EXHAUST DENSITY = 0.070344 EXHAUST FLOW RATE = 7354.3

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1968.2	160.18	8.4546	9.5749	0.12519
CORRECTED CONC. TO WET BASIS			7.2455	8.2056	0.10729

EMISSION RATE	HC	NOX	CO
	0.51964	0.14018	38.686
EMISSION MASS/MODE	0.051964	0.014018	3.8686
EMISSION MASS/RATED HP	0.00032478	8.7613E-05	0.024179
MODE EMISS./STD. CYCLE %	17.094	5.8409	57.568

CAL. FUEL AIR RATIO = 0.086725 MEAS. FUEL AIR RATIO = 0.086609 DIFF. MEAS. & CAL. F/A PERCENT = 0.13427

CYL TEMP. DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	329.25	340.45	344.99	510.23

EXT GAS TEMP. DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1357.7	-454.00	782.39	919.16	1117.3	1117.8

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.597
	186.77	187.66	70.699	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.259
	149.83	2319.6	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	58.181	58.542	64.119	55.832

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	78.386	2.0115	53.307	1988.0

CELL TEMP. = 78.377 HEATER TEMP = 79.192 COOLER TEMP = 50.735

NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDEII REC 04/07/76 18:12:10.352 FAC SEX15 PGM C003 RDG 2925

LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 80 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.160 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	58.732	29.178	209.42	961.27	8.2102	14.796

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	71.340	5.4005	44.876	75.158	72.343	5.9805

COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	61.872	2.9325	3.9751	9832.1	81.816	53.196

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	81.816	24.852	59.787	1.3729	155.38

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.075257	0.074620	1.1232	2699.8	2702.7	289.02	148.57

WET CORRECTION FACTOR = 0.84131 EXHAUST MOLE. WT. = 28.068 EXHAUST DENSITY = 0.072674 EXHAUST FLOW RATE = 14335.

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM	CO DRY
	1247.1	11.2530
CORRECTED CONC. TO WET BASIS	NOX PPM	O2 DRY
	547.53	0.084468
	5.2910	0.071064
	4.4514	

	HC	NOX	CO
EMISSION RATE	0.64183	0.93405	46.328
EMISSION MASS/MODE	0.0032091	0.0046703	0.23164
EMISSION MASS/RATED HP	2.0057E-05	2.9189E-05	0.0014478
MODE EMIS./STD. CYCLE %	1.9556	1.9459	3.4470

CAL. FUEL AIR RATIO = 0.078716 MEAS. FUEL AIR RATIO = 0.075257 DIFF MEAS. & CAL. F/A PERCENT = 4.5956

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	418.67	434.97	421.26	606.92

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	746.89	127.16	841.98	1244.2	1361.4	1359.0

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	189.04	211.38	72.735	28.199

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	287.62	2634.1	29.347

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	58.398	58.732	104.05	55.327

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	79.269	2.9777	53.272	2390.3

CFL TEMP. = 81.386 HEATER TEMP = 84.030 COOLER TEMP = 48.822

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NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDEII REC 04/07/76 18:15:04.324 FAC SEX15 PGM C003 RDG 2926  
 LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 80 % MODE = 4.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.160 RATED HP. = 160.00 HC RATIO = 2.1250  
 COMB. AIR TEMP 59.482 PRESS 29.188 CFM 167.50 DRY FLOW 758.89 VAPOR FLOW 6.5193 PRESS TOTAL 14.659  
 COMB. FUEL TEMP 72.773 PRESS 5.4596 DENSITY 44.838 TURBO FLOW 58.300 FLOW TRON 56.670 FPIP 6.0429  
 COOLING AIR TEMP 62.646 UDEL-HOOD 2.8774 DEL-HOOD 3.8826 FLOW 9727.9 REL-HUM 79.098 DEW-POINT 53.006  
 REL-HUM 1 79.098 2 5.9546 HUMIDITY 60.134 % H2O VAPOR 1.3809 CORRECTED HP 120.66  
 ENG. COND. F/A DRY 0.074675 F/A WET 0.074039 EQU. RATIO 1.1145 RPM-1 2427.8 RPM-2 2429.7 TORQUE 256.78 BHP 118.70  
 WET CORRECTION FACTOR = 0.84603 EXHAUST MOLE. WT. = 28.117 EXHAUST DENSITY = 0.072801 EXHAUST FLOW RATE = 11292.  
 MEASURED CONC. PART PER MILLION WET PER CENT  
 HC PPM 1251.1 NOX PPM 802.52 CO DRY 4.6484 CO2 DRY 11.5370 O2 DRY 0.11719  
 CORRECTED CONC. TO WET BASIS 3.9327 9.7603 0.099148  
 EMISSION RATE HC 0.50719 NOX 1.0784 CO 32.240  
 EMISSION MASS/MODE 0.042266 0.089866 2.6867  
 EMISSION MASS/RATED HP 0.00026416 0.00056166 0.016792  
 MODE EMIS./STD. CYCLE % 13.903 37.444 39.980  
 CAL. FUEL AIR RATIO = 0.077172 MEAS. FUEL AIR RATIO = 0.074675 DIFF MEAS. & CAL. F/A PERCENT = 3.3449  
 CYL TEMP DEG.F CYL-1 393.20 CYL-2 411.76 CYL-3 411.61 CYL-4 269.01  
 EXT GAS TEMP DEG.F EXT-1 1277.0 EXT-2 -417.06 EXT-3 867.06 EXT-4 1104.2 SEXT-1 1299.7 SEXT-2 1299.2  
 ENGINE OIL EOILT 187.13 SOILT 183.30 OILP 70.967 MANIFOLD PRESSURE = 26.269  
 DYNO COND. TORQUE 249.50 RPM 2348.9 CYL. BACK PRESSURE = 29.360  
 INDUCTION AIR IAIRT1 59.121 IAIRT2 59.482 TAIRT1 136.08 TAIRT2 55.454  
 ORIFICE AIR TEMP 79.684 DELTAP 1.0360 DRFP 53.229 FLOW 1439.4  
 CFLT TEMP. = 81.315 HEATER TEMP = 80.706 COOLER TEMP = 50.807

NASA-LEWIS		PRELIMINARY DATA		04/07/76		CADDÉII		REC 04/07/76 18:18:15.627		FAC SEX15		PGH C003		RDG 2927		
LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 80 %								MODE = 5.0000		NO. SCANS = 5						
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 29.160				RATED HP. = 160.00		HC RATIO = 2.1250				
COMB. AIR		TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL									
		60.718	29.165	104.32	466.62	3.9938	14.440									
COMB. FUEL		TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FP/TP									
		75.429	5.5767	44.768	42.178	37.243	6.0897									
COOLING AIR		TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT									
		62.970	2.8913	3.7717	9754.2	74.547	52.591									
REL-HUM		1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP										
		74.547	38.146	59.913	1.3758	66.820										
ENG. COND.		F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP								
		0.079814	0.079137	1.1913	2349.5	2351.9	146.53	65.552								
WET CORRECTION FACTOR = 0.85456				EXHAUST MOLE. WT. = 27.695		EXHAUST DENSITY = 0.071710		EXHAUST FLOW RATE = 7082.1								
MEASURED CONC.		PART PER MILLION WET		PER CENT												
		HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY										
		1602.3	380.22	5.9193	10.8860	0.12943										
CORRECTED CONC. TO WET BASIS				5.0584	9.3029	0.11061										
EMISSION RATE		HC	NOX	CO												
		0.40737	0.32043	26.008												
EMISSION MASS/MODE		0.040737	0.032043	2.6008												
EMISSION MASS/RATED HP		0.00025460	0.00020027	0.016255												
MODE EMISS./STD. CYCLE %		13.400	13.351	38.702												
CAL. FUEL AIR RATIO = 0.080239				MEAS. FUEL AIR RATIO = 0.079814		DIFF MEAS. & CAL. F/A PERCENT = 0.53254										
CYL TEMP DEG.F		CYL-1	CYL-2	CYL-3	CYL-4											
		337.75	347.89	350.80	445.43											
EXT GAS TEMP DEG.F		EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2									
		995.13	-385.85	866.25	982.21	1147.1	1147.5									
ENGINE OIL		EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.581											
		187.06	337.40	70.323												
DYNO COND.		TORQUE	RPM	CYL. BACK PRESSURE = 29.210												
		139.04	2308.0													
INDUCTION AIR		IAIRT1	IAIRT2	TAIRT1	TAIRT2											
		60.276	60.718	111.19	56.109											
ORIFICE AIR		TEMP	DELTAP	ORFP	FLOW											
		80.161	0.073007	53.329	273.41											
CELL TEMP. = 81.483				HEATER TEMP = 79.866				COOLER TEMP = 51.492								

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NASA-Lewis PRELIMINARY DATA 04/07/76 CADDEII REC 04/07/76 18:21:07.278 FAC SEX15 PGM C003 RDG 2928

LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 80 % MCDE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.160 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	60.330	29.170	209.85	962.84	8.2830	14.799

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	73.662	5.4398	44.814	76.140	73.453	6.0471

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	63.338	2.8445	3.6654	9665.1	77.849	53.396

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	77.849	29.685	60.218	1.3828	157.02

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.076288	0.075637	1.1386	2697.9	2701.2	291.67	149.83

WET CORRECTION FACTOR = 0.84583 EXHAUST MOLE. WT. = 27.982 EXHAUST DENSITY = 0.072453 EXHAUST FLOW RATE = 14417.

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	1238.6	600.68	5.3233	11.2040	0.094769	
CORRECTED CONC. TO WET BASIS			4.5026	9.4764	0.080159	

	HC	NOX	CO
EMISSION RATE	0.64109	1.0306	47.129
EMISSION MASS/MODE	0.0032054	0.0051528	0.23564
EMISSION MASS/RATED HP	2.0034E-05	3.2205E-05	0.0014728
MODE EMIS./STD. CYCLE %	1.0544	2.1470	3.5066

CAL. FUEL AIR RATIO = 0.078774 MEAS. FUEL AIR RATIO = 0.076288 DIFF MEAS. & CAL. F/A PERCENT = 3.2589

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	393.34	413.13	403.74	324.31

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1675.0	135.06	923.93	1261.2	1338.6	1336.3

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	186.60	225.58	73.723	28.229

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	290.99	2609.2	29.300

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	59.987	60.330	58.855	55.617

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	80.513	2.0285	53.236	1992.0

CELL TEMP. = 81.958 HEATER TEMP = 79.470 COOLER TEMP = 51.285

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NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDE(I) REC 04/07/76 18:23:59.881 FAC SEX15 PGM C003 RDG 2929

LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 80 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.160 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	57.773	29.188	167.67	761.48	6.5662	14.646

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	71.616	5.4752	44.869	59.369	57.717	6.0504

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	61.079	2.8855	3.8375	9743.2	84.618	53.176

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	84.618	0.22202	60.361	1.3861	120.51

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.075796	0.075148	1.1313	2430.1	2432.3	256.68	118.76

WET CORRECTION FACTOR = 0.85006 EXHAUST MOLE. WT. = 28.023 EXHAUST DENSITY = 0.072558 EXHAUST FLOW RATE = 11380.

MEASURED CONC.	PART PER MILLION WET		PER CENT
	HC PPM	NOX PPM	CO DRY
	1276.6	803.82	4.7428
CORRECTED CONC. TO WET BASIS			CO DRY
			11.4620
			0.11627
			0.098838

	HC	NOX	CO
EMISSION RATE	0.52158	1.0886	33.311
EMISSION MASS/MODE	0.043465	0.090717	2.7759
EMISSION MASS/RATED HP	0.00027166	0.00056698	0.017349
MODE EMIS./STD. CYCLE %	14.298	37.799	41.308

CAL. FUEL AIR RATIO = 0.077421 MEAS. FUEL AIR RATIO = 0.075796 DIFF MEAS. & CAL. F/A PERCENT = 2.1442

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	391.03	412.80	408.58	540.14

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	785.47	-436.53	900.48	1117.8	1290.2	1289.6

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 26.405
	187.59	178.49	70.775	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.278
	238.90	2379.8	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	57.466	57.773	48.691	55.501

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	77.997	1.0207	53.243	1431.1

CFLT TEMP. = 79.596 HEATER TEMP = 79.192 COOLER TEMP = 50.690

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NASA-LEWIS		PRELIMINARY DATA		04/07/76		CADDEII		REC 04/07/76 18:27:12.990		FAC SEX15		PGM C003		RDG 2930	
LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 80 %				MODE = 5.0000				NO. SCANS = 5							
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 29.160				RATED HP. = 160.00		HC RATIO = 2.1250			
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		58.642		29.145		105.13		470.33		4.0542		14.442			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		74.054		5.5962		44.804		41.339		35.515		6.1047			
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		60.953		2.9973		3.8314		9953.2		80.854		52.786			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		80.854		1.1441		60.340		1.3856		66.251					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.075510		0.074865		1.1270		2353.2		2355.3		145.40		65.146	
WET CORRECTION FACTOR = 0.87004				EXHAUST MOLE. WT. = 28.047				EXHAUST DENSITY = 0.072620				EXHAUST FLOW RATE = 7021.4			
MEASURED CONC.		PART PER MILLION WFT				PER CENT									
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		1314.2		843.08		2.8506		12.2640		0.17012					
CORRECTED CONC. TO WET BASIS						2.4802		10.670		0.14801					
EMISSION RATE		HC		NOX		CO									
		0.33128		0.70444		12.643									
EMISSION MASS/MODE		0.033128		0.070444		1.2643									
EMISSION MASS/RATED HP		0.00020705		0.00044027		0.0079017									
MODE EMIS./STD. CYCLE %		10.897		29.351		18.814									
CAL. FUEL AIR RATIO = 0.073141				MEAS. FUEL AIR RATIO = 0.075510				DIFF MEAS. & CAL. F/A PERCENT = -3.1379							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		339.43		348.23		352.77		443.74							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		1492.5		-28.752		1053.5		1072.2		1168.9		1169.6			
ENGINE OIL		FOILT		SOILT		OILP		MANIFOLD PRESSURE = 18.561							
		187.00		180.14		70.491									
DYN COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.207									
		146.48		2322.1											
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
		58.235		58.642		57.274		56.039							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		78.068		2.0344		53.290		1999.3							
CELL TEMP. = 78.995				HEATER TEMP = 78.983				COOLER TEMP = 51.429							

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NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDEII REC 04/07/76 18:36:19.486 FAC SEX15 PGM C003 RDG 2931  
 LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 80 % MCDE = 3.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.160 RATED HP. = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CEM	DPY FLOW	VAPOR FLOW	PRESS TOTAL
	59.256	9.171	210.02	964.87	8.0853	14.805
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	73.067	5.4488	44.830	74.483	70.993	6.0366
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	62.502	3.1036	3.9538	10148.	78.850	52.701
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP	
	78.850	0.45805	58.658	1.3470	157.66	
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE
	0.073578	0.072966	1.0982	2698.8	2760.9	293.28
						BHP
						150.70
WET CORRECTION FACTOR = 0.85018			EXHAUST MOLE. WT. = 28.209		EXHAUST DENSITY = 0.073040	
			EXHAUST FLOW RATE = 14292.			
MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	1092.9	935.29	3.8264	11.9440	0.10487	
CORRECTED CONC. TO WET BASIS				10.155	0.089159	
	HC	NOX	CO			
EMISSION RATE	0.56079	1.5908	33.756			
EMISSION MASS/MODE	0.0028039	0.0079539	0.16878			
EMISSION MASS/RATED HP	1.7525E-05	4.9712E-05	0.0010549			
MODE FMIS./STD. CYCLE %	0.92234	3.3141	2.5116			
CAL. FUEL AIR RATIO = 0.075299			MEAS. FUEL AIR RATIO = 0.073578		DIFF MEAS. & CAL. F/A PERCENT = 2.3403	
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4		
	403.22	418.16	410.21	468.08		
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1244.9	260.84	1055.5	1405.3	1357.2	1354.2
ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.310		
	168.21	177.79	72.655			
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.302			
	295.82	2602.8				
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2		
	58.849	59.256	85.010	55.321		
OPTIFICE AIR	TEMP	DELTAP	ORFP	FLOW		
	79.314	1.0626	53.252	1457.9		
CELL TEMP. = 80.628	HEATER TEMP = 79.637		COOLER TEMP = 51.636			

NASA-LEWIS		PRELIMINARY DATA		04/07/76		CADDETT		REC 04/07/76 18:38:33.791		FAC SEX15		PGM C003		RDG 2932		
LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 80 %								MODE = 4.0000		NO. SCANS = 5						
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 29.160				RATED HP. = 160.00		HC RATIO = 2.1250				
COMB. AIR		TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL									
		59.924	29.137	167.48	759.18	6.3929	14.620									
COMB. FUEL		TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP									
		73.521	5.4611	44.818	57.427	55.352	6.0699									
COOLING AIR		TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT									
		62.799	3.0651	3.9776	10078.	76.400	52.491									
REL-HUM		1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP										
		76.400	3.5343	58.945	1.3536	120.47										
ENG. COND.		F/A DRY	F/A WFT	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP								
		0.072910	0.072302	1.0882	2427.9	2430.4	256.30	118.48								
WET CORRECTION FACTOR = 0.85366				EXHAUST MOLE. WT. = 28.266		EXHAUST DENSITY = 0.073186		EXHAUST FLOW RATE = 11216.								
MEASURED CONC.		PART PER MILLION WET		PER CENT												
		HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY										
		1122.3	1089.8	3.2792	12.2000	0.14823										
CORRECTED CONC. TO WET BASIS				2.7993	10.415	0.12654										
EMISSION RATE		HC	NOX	CO												
		0.45194	1.4547	22.796												
EMISSION MASS/MODE		0.037662	0.12122	1.8997												
EMISSION MASS/RATED HP		0.00023539	0.00075765	0.011873												
MODE EMIS./STD. CYCLE %		12.389	50.510	28.269												
CAL. FUEL AIR RATIO = 0.073978				MEAS. FUEL AIR RATIO = 0.072910		DIFF MEAS. & CAL. F/A PERCENT = 1.4647										
CYL TEMP DEG. F		CYL-1	CYL-2	CYL-3	CYL-4											
		398.61	416.37	407.61	296.04											
EXT GAS TEMP DEG. F		EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2									
		895.06	-149.71	999.33	1265.3	1311.5	1310.9									
ENGINE OIL		EOILT	SOILT	OILP	MANIFOLD PRESSURE = 26.335											
		173.74	169.31	69.539												
DYNQ COND.		TORQUE	RPM	CYL. BACK PRESSURE = 29.342												
		263.81	2328.5													
INDUCTION AIR		IAIRT1	IAIRT2	TAIRT1	TAIRT2											
		59.590	59.924	71.917	55.736											
ORIFICE AIR		TEMP	DELTAP	ORFP	FLOW											
		79.658	1.0626	53.366	1457.5											
CELL TEMP. = 81.086				HEATER TEMP = 78.907				COOLER TEMP = 52.438								

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NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDEII REC 04/07/76 18:46:07.391 FAC SEX15 PGM C003 RDG 2934  
 LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 80 % MODE = 5.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.160 RATED HP. = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	58.389	29.162	105.16	470.18	3.9624	14.435
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	73.191	5.5899	44.827	42.818	35.082	6.1074
COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	60.024	3.0521	4.0025	10054.	79.751	52.166
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP	
	79.751	8.8809	58.991	1.3546	66.071	
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE
	0.074615	0.073991	1.1137	2349.1	2350.9	145.36
						BHP
						65.013
WET CORRECTION FACTOR = 0.86189			EXHAUST MOLE. WT. = 28.122		EXHAUST DENSITY = 0.072814	
			EXHAUST FLOW RATE = 6993.5			
MEASURED CONC.	PART PER MILLION WET		PER CENT			
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	1280.7	770.88	3.2064	12.1950	0.16586	
CORRECTED CONC. TO WET BASIS			2.7535	10.511	0.14295	
	HC	NOX	CO			
EMISSION RATE	0.32155	0.54155	14.031			
EMISSION MASS/MODE	0.032155	0.064155	1.4031			
EMISSION MASS/RATED HP	0.00020097	0.00040097	0.0087696			
MODE EMISS./STD. CYCLE %	10.577	26.731	20.880			
CAL. FUEL AIR RATIO = 0.073863			MEAS. FUEL AIR RATIO = 0.074615		DIFF MEAS. & CAL. F/A PERCENT = -1.0080	
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4		
	350.87	356.39	356.33	389.93		
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1260.2	122.39	1149.2	1089.7	1192.9	1194.4
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.721		
	184.42	195.77	70.943			
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.261			
	138.06	2327.0				
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2		
	59.027	58.389	82.153	56.218		
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW		
	77.599	1.0887	53.357	1477.8		
CELL TEMP. =	78.704	HEATER TEMP =	99.240	COOLER TEMP =	54.158	

NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDEII REC 04/07/76 18:49:04.373 FAC SEX15 PGM C003 RDG 2935

LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 80 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.170 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	57.954	29.183	209.16	960.38	8.1359	14.809

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	71.055	5.4401	44.984	73.095	70.270	6.1362

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT
	60.826	3.1888	4.1060	10302.	83.531	53.001

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	83.531	25.641	59.301	1.3617	157.08

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	PPM-2	TORQUE	BHP
	0.073168	0.072554	1.0921	2701.6	2703.5	292.36	150.39

WET CORRECTION FACTOR = 0.84620 EXHAUST MOLE. WT. = 28.244 EXHAUST DENSITY = 0.073130 EXHAUST FLOW RATE = 14204.

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	1062.1	792.38	4.0433	11.8140	0.11499	
CORRECTED CONC. TO WET BASIS			3.4214	9.9969	0.097306	

	HC	NOX	CO
EMISSION RATE	0.54162	1.3394	35.284
EMISSION MASS/MODE	0.0027081	0.0066970	0.17642
EMISSION MASS/RATED HP	1.6926E-05	4.1856E-05	0.0011026
MODE FMIS./STD. CYCLE %	0.89082	2.7904	2.6253

CAL. FUEL AIR RATIO = 0.075743 MEAS. FUEL AIR RATIO = 0.073168 DIFF MEAS. & CAL. F/A PERCENT = 3.5183

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	417.65	427.55	417.97	382.03

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1280.7	350.83	1168.9	1308.8	1383.4	1382.0

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.202
	187.75	281.07	72.971	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.339
	284.51	2618.1	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	57.638	57.954	90.434	55.682

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	77.732	3.9629	53.260	2754.4

CELL TEMP. = 79.367 HEATER TEMP = 79.984 COOLER TEMP = 50.942

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NASA-LEWIS		PRELIMINARY DATA		04/07/76	CADDE11	REC 04/07/76 18:52:31.515	FAC SEX15	PGM C003	RDG 2936
LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 80 %				MODE = 4.0000		NO. SCANS = 5			
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.170		RATED HP. = 160.00		HC RATIO = 2.1250	
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL			
	58.551	29.184	169.15	768.25	6.5253	14.644			
COMP. FUEL	TEMP	PRESS	DENSITY	TUPRO FLOW	FLOW TRON	FPIP			
	72.346	5.4758	44.849	57.472	55.683	6.0420			
COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT			
	61.484	3.0770	4.0044	10100.	81.059	52.766			
RFL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP					
	81.059	10.595	59.455	1.3653		120.56			
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP		
	0.072479	0.071869	1.0818	2426.7	2428.9	256.98	118.74		
WET CORRECTION FACTOR = 0.85085		EXHAUST MOLE. WT. = 28.302		EXHAUST DENSITY = 0.073282		EXHAUST FLOW RATE = 11332.			
MEASURED CONC.	PART PER MILLION WET		PER CENT						
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY				
	1112.4	1218.4	3.4606	12.068	0.20020				
CORRECTED CONC. TO WET BASIS			2.9445	10.268	0.17034				
EMISSION RATE	HC	NOX	CO						
	0.45257	1.5431	24.225						
EMISSION MASS/MODE	0.037714	0.13693	2.0188						
EMISSION MASS/PATED HP	0.00023571	0.00085579	0.012617						
MODE EMIS./STD. CYCLE %	12.406	57.052	30.041						
CAL. FUEL AIR RATIO = 0.074214		MEAS. FUEL AIR RATIO = 0.072479		DIFF MEAS. & CAL. F/A PERCENT = 2.3928					
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4					
	392.43	410.63	407.50	317.34					
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2			
	1242.8	-91.893	1088.1	1221.5	1328.4	1328.9			
ENGINE OIL	EQILT	SOILT	OILP	MANIFOLD PRESSURE = 26.563					
	187.24	203.38	71.023						
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.328						
	252.47	2370.2							
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2					
	58.217	58.551	50.391	55.493					
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW					
	78.280	2.0338	53.243	1998.6					
CELL TEMP. =	80.319	HEATER TEMP = 78.955		COOLER TEMP = 51.456					

NASA-LEWIS		PRELIMINARY DATA		04/07/76		CADDEII		REC 04/07/76 19:16:49.506		FAC SEX15		PGM C003		RDG 2940	
LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 80 %										MODE = 5.0000		NO. SCANS = 5			
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 29.180				RATED HP. = 160.00		HC RATIO = 2.1250			
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		59.617		29.174		105.19		471.02		4.0286		14.453			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		74.950		5.5899		44.781		43.588		35.248		6.0702			
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		61.637		2.9743		3.8702		9910.4		77.540		52.596			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		77.540		12.075		59.871		1.3748		66.007					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.074832		0.074198		1.1169		2355.6		2358.8		144.55		64.832	
WET CORRECTION FACTOR = 0.85870				EXHAUST MOLE. WT. = 28.103				EXHAUST DENSITY = 0.072766				EXHAUST FLOW RATE = 7012.8			
MEASURED CONC.		PART PER MILLION WET				PER CENT									
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		1348.2		706.37		3.6253		11.845		0.14975					
CORRECTED CONC. TO WET BASIS						3.1131		10.172		0.12859					
		HC		NOX		CO									
EMISSION RATE		0.33943		0.58948		15.849									
EMISSION MASS/MODE		0.033943		0.058948		1.5849									
EMISSION MASS/RATED HP		0.00021214		0.00036843		0.0099059									
MODE EMIS./STD. CYCLE %		11.165		24.562		23.586									
CAL. FUEL AIR RATIO = 0.074957				MEAS. FUEL AIR RATIO = 0.074832				DIFF MEAS. & CAL. F/A PERCENT = 0.16655							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		346.87		355.77		356.16		527.24							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		1429.1		275.19		1184.6		1129.7		1164.2		1164.7			
ENGINE OIL		FOILT		SOILT		OILP		MANIFOLD PRESSURE = 18.705							
		182.86		234.68		70.051									
DYNO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.229									
		148.44		2312.6											
INDUCTION AIR		TAIRT1		TAIRT2		TAIRT1		TAIRT2							
		59.265		59.617		91.896		56.015							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		78.492		1.0445		53.350		1446.8							
CELL TEMP. = 79.057				HEATER TEMP = 78.365				COOLER TEMP = 51.537							

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NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDEII REC 04/07/76 19:20:53.091 FAC SEX15 PGM C003 RDG 2941

LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 80 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.180 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.418	29.154	208.30	956.36	8.2865	14.805

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	72.871	5.4449	44.835	68.956	66.619	6.0054

COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	62.511	3.0922	3.9228	10128.	81.027	53.601

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	81.027	15.518	60.652	1.3928	154.91

ENG. COND.	F/A DRY	F/A WET	FOW. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.069658	0.069060	1.0397	2698.8	2701.2	287.70	147.84

WET CORRECTION FACTOR = 0.84709 EXHAUST MOLE. WT. = 28.474 EXHAUST DENSITY = 0.073727 EXHAUST FLOW RATE = 13987.

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	NOX PPM	CO DRY
951.59	1416.1	2.5315
		12.5180
		10.604
		0.12609
		0.10681

	HC	NOX	CO
EMISSION RATE	0.47765	2.3572	21.776
EMISSION MASS/MODE	0.0023892	0.011786	0.10888
EMISSION MASS/RATED HP	1.4933E-05	7.3662E-05	0.00068051
MODE EMIS./STD. CYCLE %	0.78593	4.9108	1.6203

CAL. FUEL AIR RATIO = 0.072375 MEAS. FUEL AIR RATIO = 0.069658 DIFF MEAS. & CAL. F/A PERCENT = 3.9002

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	421.20	438.34	427.21	377.18

EXT GAS TEMP DEG.F	EXT-1	FXT-2	FXT-3	EXT-4	SEXT-1	SEXT-2
	1025.8	566.38	1429.6	1455.3	1409.0	1406.2

ENGINE OIL	ENILT	SOILT	OILP	MANIFOLD PRESSURE = 28.226
	187.17	165.75	72.999	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.340
	281.02	2646.3	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	59.075	59.418	83.521	55.435

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	79.013	0.095209	53.284	337.99

CELL TEMP. = 80.028 HEATER TEMP = 78.149 COOLER TEMP = 50.248

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NASA-LEWIS		PRELIMINARY DATA		04/07/76	CADDELL	REC 04/07/76 19:23:41.758	FAC SEX15	PGM C003	RDG 2942
LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 80 %				MODE = 4.0000		NO. SCANS = 5			
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.180		RATED HP. = 160.00		HC RATIO = 2.1250	
COMB. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL			
	59.987	29.131	173.44	787.88	6.8349	14.650			
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP			
	73.698	5.5031	44.814	55.693	54.764	5.0738			
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT			
	62.997	3.0623	3.8929	10073.	78.660	53.346			
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP				
	78.660	46.389	60.726	1.3945	121.43				
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP		
	0.069509	0.068911	1.0374	2427.1	2429.4	258.29	119.36		
WET CORRECTION FACTOR = 0.85283		EXHAUST MOLE. WT. = 28.489		EXHAUST DENSITY = 0.073765		EXHAUST FLOW RATE = 11515.			
MEASURED CONC.	PART PER MILLION WET		PER CENT						
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY				
	802.38	1696.3	2.4394	12.4190	0.38418				
CORRECTED CONC. TO WET BASIS			2.0804	10.591	0.32764				
EMISSION RATE	HC	NOX	CO						
	0.33172	2.3245	17.393						
EMISSION MASS/MODE	0.027643	0.19371	1.4494						
EMISSION MASS/RATED HP	0.00017277	0.0012107	0.0090589						
MODE EMIS./STD. CYCLE %	9.0932	80.713	21.569						
CAL. FUEL AIR RATIO = 0.071281		MEAS. FUEL AIR RATIO = 0.069509		DIFF MEAS. & CAL. F/A PERCENT = 2.5494					
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4					
	404.98	414.33	409.77	280.15					
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2			
	1145.2	131.33	1024.0	1337.0	1354.8	1354.0			
ENGINE OIL	EOILT	SOILT	OTLP	MANIFOLD PRESSURE = 27.103					
	187.69	198.42	70.399						
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.349						
	261.71	2368.2							
INDUCTION AIR	TAIPT1	TAIRT2	TAIRT1	TAIPT2					
	59.608	59.987	52.047	55.467					
GRIFICE AIR	TEMP	DELTAP	ORFP	FLOW					
	79.428	0.092109	53.246	329.28					
CELL TEMP. = 80.610		HEATER TEMP = 78.052		COOLER TEMP = 51.411					

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NASA-LEWIS		PRELIMINARY DATA		04/07/76	CADDEI1	RFC 04/07/76 19:28:21.425		FAC SEX15	PGM C003	RDG 2943
LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 80 %				MODE = 5.0000		NO. SCANS = 5				
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.180		RATED HP. = 160.00		HC RATIO = 2.1250		
COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL				
	59.310	29.178	113.86	510.09	4.4208	14.469				
COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP				
	74.710	5.6142	44.787	43.752	33.738	6.1260				
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT				
	61.412	2.9724	3.9045	9906.8	79.512	52.981				
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP					
	79.512	28.677	60.666	1.3931	65.670					
ENG. COND.	F/A DRY	F/A WET	FQU. RATIO	RPM-1	RPM-2	TORQUE	BHP			
	0.066142	0.065573	0.98719	2343.1	2343.9	144.60	64.509			
WET CORRECTION FACTOR = 0.86623		EXHAUST MOLE. WT. = 28.727		EXHAUST DENSITY = 0.074380		EXHAUST FLOW RATE = 7370.9				
MEASURED CONC.	PART PER MILLION WET		PER CENT							
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY					
	568.36	1282.3	0.74719	12.9160	0.86649					
CORRECTED CONC. TO WET BASIS			0.64724	11.188	0.75058					
EMISSION RATE	HC	NOX	CO							
	0.15040	1.1248	3.4636							
EMISSION MASS/MODE	0.015040	0.11248	0.34636							
EMISSION MASS/RATED HP	9.3998E-05	0.00070299	0.0021647							
MODE EMIS./STD. CYCLE %	4.9472	46.866	5.1541							
CAL. FUEL AIR RATIO = 0.066064		MEAS. FUEL AIR RATIO = 0.066142		DIFF MEAS. & CAL. F/A PERCENT = -0.11661						
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4						
	328.21	330.94	338.92	450.66						
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2				
	1179.5	554.05	1220.4	1286.0	1218.0	1218.0				
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 19.892						
	185.65	226.18	70.695							
DYNO COND.	TOPOUE	RPM	CYL. BACK PRESSURE = 29.255							
	148.33	2272.7								
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2						
	59.976	59.310	181.03	56.271						
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW						
	78.103	1.0028	53.288	1418.6						
CELL TEMP. = 78.899	HEATER TEMP = 77.940		COOLER TEMP = 53.240							

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NASA-Lewis		PRELIMINARY DATA		04/07/76		CADDEII		REC 04/07/76 19:31:15.050		FAC SEX15		PGM C003		RDG 2944	
LEANOUT 25 BTDC TO CL APP 59 DEG HUM = 80 %															
MODE = 3.0000															
NO. SCANS = 5															
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 29.180				RATED HP. = 160.00				HC RATIO = 2.1250	
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
58.099		29.187		209.56		961.12		8.3724		14.811					
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
71.447		5.4587		44.873		69.200		67.555		6.0033					
COOLING AIR		TEMP		WDEI-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
60.628		2.9967		3.9269		9952.2		85.430		53.756					
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
85.430		22.278		60.977		1.4002		155.36							
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
0.070287		0.069680		1.0491		2700.4		2703.8		289.16		148.68			
WET CORRECTION FACTOR = 0.85243				EXHAUST MOLE. WT. = 28.491				EXHAUST DENSITY = 0.073771				EXHAUST FLOW RATE = 14057.			
MEASURED CONC.		PART PER MILLION WET				PER CENT		CO2 DRY		O2 DRY					
958.30		1534.0				2.4111		12.4890		0.15158					
CORRECTED CONC. TO WET BASIS		2.0553				10.646		0.12921							
EMISSION RATE		HC		NOX		CO									
0.48362		2.5661		20.976											
EMISSION MASS/MODE		0.0024181		0.012830		0.10488									
EMISSION MASS/RATED HP		1.5113E-05		8.0190E-05		0.00065549									
MODE EMIS./STD. CYCLE %		0.79543		5.3460		1.5607									
CAL. FUEL AIR RATIO = 0.072066				MEAS. FUEL AIR RATIO = 0.070287				DIFF MEAS. & CAL. F/A PERCENT = 2.5307							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
399.14		414.42		408.09		441.75									
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
1342.9		693.72		1477.8		1397.3		1405.0		1402.3					
ENGINE OIL		EOILT		SOILT		OILT		MANIFOLD PRESSURE = 28.289							
185.02		249.25		73.751											
DYN COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.324									
283.13		2620.2													
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
57.755		58.099		178.53		56.168									
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
77.227		0.071507		53.342		269.55									
CELL TEMP. = 79.013				HEATER TEMP = 87.016				COOLER TEMP = 51.915							

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NASA-LEWIS		PRELIMINARY DATA		04/07/76	CADDEII	REC 04/07/76 19:33:27.649	FAC SEX15	PGM C003	RDG 2945
LEANOUT 25 BTOC TO CL APP 59 DEG HUM = 80 %				MODE = 4.0000		NO. SCANS = 5			
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.180		RATED HP. = 160.00		HC RATIO = 2.1250	
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL			
	58.262	29.219	170.97	776.22	6.7566	14.650			
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP			
	72.115	5.5076	44.855	54.455	53.168	6.0738			
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT			
	61.142	3.1249	3.8929	10187.	83.943	53.436			
REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP					
	83.943	10.763	60.931	1.3992		120.48			
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP		
	0.068495	0.067905	1.0223	2428.4	2431.3	256.61	118.65		
WET CORRECTION FACTOR = 0.85081		EXHAUST MOLE WT. = 28.579		EXHAUST DENSITY = 0.073998		EXHAUST FLOW RATE = 11299.			
MEASURED CONC.	PART PER MILLION WET		PER CENT						
	HC PPM	NOX PPM	CO DRY	CO2 DRY	NO2 DRY				
	914.69	1760.7	2.0257	12.5930	0.26349				
CORRECTED CONC. TO WET BASIS			1.7235	10.714	0.22418				
EMISSION RATE	HC	NOX	CO						
	0.37105	2.3675	14.138						
EMISSION MASS/MODE	0.030920	0.19729	1.1782						
EMISSION MASS/RATED HP	0.00019325	0.0012331	0.0073637						
MODE EMIS./STD. CYCLE %	10.171	82.204	17.533						
CAL. FUEL AIR RATIO = 0.070870		MEAS. FUEL AIR RATIO = 0.068496		DIFF MEAS. & CAL. F/A PERCENT = 3.4661					
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4					
	404.11	416.32	411.08	329.19					
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2			
	1336.8	437.00	1178.2	1409.4	1357.2	1356.1			
ENGINE OIL	FOILT	SOILT	OILT	MANIFOLD PRESSURE = 26.989					
	188.08	219.84	70.955						
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.311						
	265.86	2367.7							
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2					
	57.936	58.262	159.28	55.717					
ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW					
	77.626	2.0146	53.310	1990.9					
CELL TEMP. = 79.031	HEATER TEMP = 79.574		COOLER TEMP = 51.916						

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NASA-LEWIS		PRELIMINARY DATA		04/07/76		CADDIE		REC 04/07/76 19:36:07.043		FAC SEX15		PGM C003		RDG 2946	
LEANOUT 25 RTDC TO CL APF 59 DEG HUM = 80 %								MODE = 5.0000		NO. SCANS = 5					
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 29.180				RATED HP. = 160.00		HC RATIO = 2.1250			
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		59.202		29.165		110.71		495.77		4.3065		14.458			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		74.338		5.6043		44.797		41.863		33.786		6.0978			
COOLING AIR		TEMP		INLET-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		61.367		2.9804		3.7681		9921.8		79.938		53.021			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		79.938		32.331		60.805		1.3963		67.353					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.068149		0.067562		1.0171		2355.9		2358.2		147.52		66.174	
WET CORRECTION FACTOR = 0.86783				EXHAUST MOLE. WT. = 28.505				EXHAUST DENSITY = 0.074068				EXHAUST FLOW RATE = 7207.7			
MEASURED CONC.		PART PER MILLION WET				CO DRY		PER CENT		O2 DRY					
		HC PPM				NOX PPM		1.0368		12.8880		0.63376			
		663.17				1285.6		0.89980		11.185		0.55000			
CORRECTED CONC. TO WET BASIS															
		HC				NOX		CO							
EMISSION RATE		0.17160				1.1027		4.7085							
EMISSION MASS/MODE		0.017160				0.11027		0.47085							
EMISSION MASS/RATED HP		0.00010725				0.00068919		0.0029428							
MODE EMIS./STD. CYCLE %		5.6447				45.946		7.0067							
CAL. FUEL AIR RATIO = 0.067454				MEAS. FUEL AIR RATIO = 0.068149				DIFF MEAS. & CAL. F/A PERCENT = -1.0189							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		347.63		351.58		356.60		467.00							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		1731.3		584.42		1323.4		1333.7		1236.5		1237.0			
ENGINE OIL		EOILT		SOILT		OILP		MANIFOLD PRESSURE = 19.491							
		187.04		186.85		70.559									
DYNO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.222									
		150.62		2303.6											
INDUCTION AIR		TAIPT1		TAIRT2		TAIRT1		TAIRT2							
		58.840		59.202		112.79		56.061							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		78.086		3.0139		53.285		2406.9							
CELL TEMP. = 78.810				HEATER TEMP = 78.761				COOLER TEMP = 51.681							

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NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDELL RFC 04/07/76 21:02:28.252 FAC SEX15 PGM C003 RDG 2959

LEANOUT 25 BTDC I & T 59 DEG HUM = 80 \* 1 1/2 T CLOS MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.220 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.726	29.219	10.786	48.140	0.41606	14.352

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	73.538	5.8437	44.919	3.9764	3.5073	5.1752

COOLING AIR	TEMP	WHEEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	63.293	-0.025185	0.95035	0.00000	77.496	52.686

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	77.496	0.37204	60.499	1.3893	0.21604

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.072858	0.072233	1.0874	591.54	591.36	1.8919	0.21308

WET CORRECTION FACTOR = 0.87836 EXHAUST MOLE. WT. = 28.270 EXHAUST DENSITY = 0.073198 EXHAUST FLOW RATE = 711.26

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	O2 DRY
	14850	30.594	2.7633	10.7850
CORRECTED CONC. TO WET BASIS			2.4272	9.4727

	HC	NOX	CO
EMISSION RATE	0.37920	0.0025895	1.2533
EMISSION MASS/MODE	0.0063199	4.3158E-05	0.020889
EMISSION MASS/RATED HP	3.9500E-05	2.6974E-07	0.00013056
MODE EMISS./STD. CYCLE %	2.0789	0.017983	0.31085

CAL. FUEL AIR RATIO = 0.071321 MEAS. FUEL AIR RATIO = 0.072858 DIFF MEAS. & CAL. F/A PERCENT = -2.1089

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	259.69	272.42	267.39	441.90

EXT GAS TEMP DEG.F	FXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1236.2	-454.00	63.850	532.77	533.12	531.68

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	131.10	306.21	44.540	11.834

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	5.3501	588.78	29.610

INDUCTION AIR	IAIPT1	IAIRT2	TAIRT1	TAIRT2
	59.003	59.726	137.08	54.007

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	80.840	1.0517	53.306	1448.5

CELL TEMP. = 75.376 HEATER TEMP = 80.561 COOLER TEMP = 42.764

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NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDELI REC 04/07/76 21:05:19.611 FAC SEX15 PGM C003 RDG 2960  
 LEANOUT 25 BTDC 1 & T 59 DEG HUM = 80 % 1 1/2 T CLOS MODE = 2.0000 NJ. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.220 RATED HP. = 160.00 HC RATIO = 2.1250  
 COMB. AIR TEMP PRESS CFM DRY FLOW VAPOR FLOW PRESS TOTAL  
 59.500 29.213 17.953 80.169 0.69182 14.350  
 COMB. FUEL TEMP PRESS DENSITY TURBO FLOW FLOW TRON FPIP  
 74.293 5.7918 44.798 7.3561 6.3546 6.1599  
 COOLING AIR TEMP WDEL-HOOD DEL-HOOD FLOW REL-HUM DEW-POINT  
 64.363 -0.031827 0.94042 0.00000 77.993 52.641  
 REL-HUM 1 2 HUMIDITY % H2O VAPOR CORRECTED HP  
 77.993 0.31803 60.407 1.3871 1.3970  
 ENG. COND. F/A DRY F/A WET EQU. RATIO RPM-1 RPM-2 TORQUE BHP  
 0.079266 0.078587 1.1831 1199.5 1200.2 6.0339 1.3780  
 WET CORRECTION FACTOR = 0.85744 EXHAUST MILE. WT. = 27.739 EXHAUST DENSITY = 0.071824 EXHAUST FLOW RATE = 1214.3  
 MEASURED CONC. PART PER MILLION WET PER CENT  
 HC PPM NOX PPM CO DRY CO2 DRY O2 DRY  
 2217.3 59.556 5.1517 11.4190 0.13907  
 CORRECTED CONC. TO WET BASIS 4.4173 9.7912 0.11925  
 EMISSION RATE HC NOX CO  
 0.096660 0.0086059 3.8942  
 EMISSION MASS/MODE 0.017721 0.0015777 0.71393  
 EMISSION MASS/RATED HP 0.00011076 9.8609E-06 0.0044621  
 MODE EMIS./STD. CYCLE % 5.8293 0.65739 10.624  
 CAL. FUEL AIR RATIO = 0.078636 MEAS. FUEL AIR RATIO = 0.079266 DIFF MEAS. & CAL. F/A PERCENT = -0.79437  
 CYL TEMP. DEG. F CYL-1 CYL-2 CYL-3 CYL-4  
 270.43 286.54 278.06 404.27  
 EXT GAS TEMP DEG. F EXT-1 EXT-2 EXT-3 EXT-4 SEXT-1 SEXT-2  
 1486.8 -454.00 -74.512 534.12 525.16 523.32  
 ENGINE OIL EOILT SOILT OILP MANIFOLD PRESSURE = 7.8662  
 135.82 325.58 56.398  
 DYMO COND. TORQUE RPM CYL. BACK PRESSURE = 29.265  
 4.1980 1190.3  
 INDUCTION AIR TAIRT1 TAIRT2 TAIRT1 TAIRT2  
 58.904 59.500 95.983 53.688  
 ORIFICE AIR TEMP DELTAP ORIF FLOW  
 81.404 1.0415 53.337 1440.8  
 CELL TEMP. = 75.908 HEATER TEMP = 81.804 COOLER TEMP = 43.108

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NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDILLAC REC 04/07/76 21:06:42.815 FAC SEX15 PGM C003 RDG 2961  
 LEANOUT 25 BTDC I & T 59 DEG HUM = 80 % 1 1/2 T CLOS MODE = 6.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.220 RATED HP = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CFM	OPY FLOW	VAPOR FLOW	PRESS TOTAL	
	59.545	29.220	18.150	81.097	0.69856	14.357	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	74.497	5.7954	44.792	7.3071	6.2916	6.1704	
COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	64.417	-0.042897	0.88396	0.00000	77.768	52.606	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	77.768	0.32003	60.297	1.3846	0.92045		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.077581	0.076919	1.1579	1199.5	1200.5	3.9754	0.90790
WET CORRECTION FACTOR = 0.84860		EXHAUST MOLE. WT. = 27.876		EXHAUST DENSITY = 0.072178		EXHAUST FLOW RATE = 1220.4	
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	2610.0	58.412	5.2746	11.3580	0.16870		
CORRECTED CONC. TO WET BASIS			4.4760	9.6383	0.14316		
EMISSION RATE	HC	NOX	CO				
	0.11435	0.0084832	3.9659				
EMISSION MASS/MODE	0.0057175	0.00042416	0.19829				
EMISSION MASS/RATED HP	3.5735E-05	2.6510E-06	0.0012393				
MODE EMIS./STD. CYCLE %	1.8808	0.17673	2.9508				
CAL. FUEL AIR RATIO = 0.079035		MEAS. FUEL AIR RATIO = 0.077581		DIFF MEAS. & CAL. F/A PERCENT = 1.8739			
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	268.32	284.65	275.83	422.19			
EXT GAS TEMP DEG.F	FXT-1	FXT-2	FXT-3	FXT-4	SFXT-1	SEXT-2	
	849.64	-454.00	-301.66	58.210	517.97	515.95	
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 7.9004			
	135.79	-108.46	56.410				
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.179				
	4.8821	1194.0					
INDUCTION AIR	IAIPT1	IAIRT2	TAIRT1	TAIRT2			
	58.976	59.545	135.93	53.662			
ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW			
	81.492	2.0194	53.364	1986.0			
CELL TEMP. = 75.810	HEATED TEMP. = 81.616		COOLER TEMP = 43.995				

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NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDEII REC 04/07/76 21:15:25.443 FAC SEX15 PGM C003 RDG 2963

LEANOUT 25 BTDC I 6 T 59 DEG HUM = 80 % 1 1/2 T CLOS MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.220 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	58.841	29.219	11.097	49.497	0.43149	14.354

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	72.907	5.8509	44.834	3.9779	3.2883	6.1677

COOLING AIR	TEMP	WDEL-HOOD	REL-HOOD	FLOW	REL-HUM	DEW-POINT
	63.725	-0.029613	0.95647	0.00000	80.681	52.921

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	80.681	0.30603	61.023	1.4013	0.42975

ENG. COND.	E/A DRY	E/A WET	EQU. RATIO	PPM-1	RPM-2	TORQUE	BHP
	0.066435	0.065861	0.99157	577.32	585.72	3.8587	0.42416

WET CORRECTION FACTOR = 0.86255 EXHAUST MOLE. WT. = 28.712 EXHAUST DENSITY = 0.074343 EXHAUST FLOW RATE = 715.82

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	16483.	33.789	1.9110	10.8270	3.5714
CORRECTED CONC. TO WET BASIS			1.6484	9.3385	3.0805

	HC	NOX	CO
EMISSION RATE	0.42360	0.0028783	0.85663
EMISSION MASS/MODE	0.0070529	4.7971E-05	0.014277
EMISSION MASS/PATED HP	4.4125E-05	2.9982E-07	8.9232E-05
MODE FMIS./STD. CYCLE %	2.3223	0.019988	0.21246

CAL. FUEL AIR RATIO = 0.068882 MEAS. FUEL AIR RATIO = 0.066435 DIFF MEAS. & CAL. F/A PERCENT = 3.6833

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	269.48	289.90	281.83	274.47

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1313.5	-454.00	0.52075	456.47	519.99	518.15

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 11.897
	139.27	364.46	46.857	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.337
	5.5301	569.46	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	58.126	58.841	130.12	54.358

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	80.258	2.0646	53.338	2009.1

CELL TEMP. = 74.320 HEATER TEMP = 80.665 COOLER TEMP = 43.524



NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDEII REC 04/07/76 21:19:21.857 FAC SEX15 PGM C003 RDG 2954

LEANOUT 25 BTDC I & T 59 DEG HUM = 80 % 3/4 T CLOSED MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.220 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	58.750	29.218	10.552	47.076	0.40869	14.350

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	72.782	5.8278	44.838	3.9765	3.9724	6.1794

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	63.518	-0.024078	0.83719	0.00000	80.586	52.801

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	80.586	0.27803	60.770	1.3955 0.58412

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	PPM-1	RPM-2	TORQUE	BHP
	0.084382	0.083655	1.2594	616.92	616.74	4.9088	0.57661

WET CORRECTION FACTOR = 0.84925 EXHAUST MOL. WT. = 27.337 EXHAUST DENSITY = 0.070782 EXHAUST FLOW RATE = 726.99

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	16151.	18.446	7.6893	9.12450	1.6120	
CORRECTED CONC. TO WET BASIS			6.5301	7.7490	1.3690	

	HC	NOX	CO
EMISSION RATE	0.42154	0.0015958	3.4465
EMISSION MASS/MODE	0.0070256	2.6596E-05	0.057442
EMISSION MASS/RATED HP	4.3910E-05	1.5623E-07	0.00035902
MODE EMIS./STD. CYCLE %	2.3111	0.011082	0.85480

CAL. FUEL AIR RATIO = 0.088063 MEAS. FUEL AIR RATIO = 0.084382 DIFF MEAS. & CAL. F/A PERCENT = 4.3629

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	265.79	281.53	264.75	310.26

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1439.2	-454.00	-55.959	381.80	508.36	506.51

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	139.12	196.00	47.569	10.697

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	5.6958	604.38	29.331

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	58.045	58.750	129.13	54.117

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	80.099	0.10961	53.436	375.90

CELL TEMP. = 73.671 HEATER TEMP = 80.491 COOLER TEMP = 43.488

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NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDE11 REC 04/07/76 21:22:11.552 FAC SEX15 PGM C003 RDG 2965

LEANOUT 25 BTDC I & T 59 DEG HUM = 80 7/8 T CLOSED MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.220 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	58.795	29.212	18.322	81.658	0.71469	14.351

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	72.969	5.7804	44.833	8.2852	6.9907	6.1674

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	64.201	-0.029613	0.97391	0.00000	81.110	53.021

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	81.110	28.947	61.266	1.4069	1.4007

ENG. COND.	F/A DRY	F/A WET	EQU. PATIO	RPM-1	RPM-2	TORQUE	BHP
	0.085609	0.084866	1.2777	1199.9	1200.1	6.0506	1.3823

WET CORRECTION FACTOR = 0.84626 EXHAUST MOLE WT. = 27.243 EXHAUST DENSITY = 0.070539 EXHAUST FLOW RATE = 1266.9

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	4181.4	43.726	8.6593	9.60430	0.16008	
CORRECTED CONC. TO WET BASIS			7.3281	8.1278	0.13547	

EMISSION RATE	HC	NOX	CO
	0.19017	0.0065920	6.7399
EMISSION MASS/MODE	0.034865	0.0012085	1.2357
EMISSION MASS/RATED HP	0.00021791	7.5534E-06	0.0077228
MODE EMIS./STD. CYCLE %	11.469	0.50356	18.388

CAL. FUEL AIR RATIO = 0.088140 MEAS. FUEL AIR RATIO = 0.085609 DIFF. MEAS. & CAL. F/A PERCENT = 2.9568

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	298.80	312.91	300.63	299.95

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1482.9	-454.00	14.493	485.57	560.15	559.50

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 7.9086
	144.23	324.54	54.993	

DYNO COND.	TORQUE	RPM	CYL BACK PRESSURE = 29.289
	4.6157	1194.3	

INDUCTION AIR	IAIPT1	IAIRT2	TAIRT1	TAIPT2
	58.189	58.795	96.698	54.598

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	80.425	1.0676	53.355	1459.8

CELL TEMP. = 74.116 HEATED TEMP = 83.420 COOLER TEMP = 45.714

NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDET1 REC 04/07/76 21:26:17.210 FAC SEX15 PGM C003 RDG 2967

LEANOUT 25 BTDC I & T 59 DEG HUM = 80 % 3/4 T CLOSED MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.220 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.193	29.226	18.332	81.842	0.71088	14.355

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	74.178	5.7762	44.801	3.9732	7.0267	6.1599

COOLING AIR	TEMP	WDEL-HOOD	DFL-HOOD	FLOW	REL-HUM	DEW-POINT
	64.991	-0.023801	0.94374	0.00000	79.393	52.826

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	79.393	35.031	60.302	1.3962	1.3975

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.085857	0.085118	1.2915	1200.2	1201.3	6.0339	1.3789

WET CORRECTION FACTOR = 0.84915 EXHAUST MOLE. WT. = 27.224 EXHAUST DENSITY = 0.070491 EXHAUST FLOW RATE = 1270.8

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	4143.3	43.636	8.4719	9.71800	0.16984
CORRECTED CONC. TO WET BASIS			7.1939	8.2520	0.14422

	HC	NOX	CO
EMISSION RATE	0.18902	0.0065989	6.6371
EMISSION MASS/MODE	0.0094512	0.00032994	0.33186
EMISSION MASS/RATED HP	5.9070E-05	2.0622E-06	0.0020741
MODE EMIS./STD. CYCLE %	3.1090	0.13748	4.9383

CAL. FUEL AIR RATIO = 0.087560 MEAS. FUEL AIR RATIO = 0.085857 DIFF MEAS. & CAL. F/A PERCENT = 1.9833

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	278.92	292.96	280.55	375.49

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	895.42	-454.00	13.738	401.73	545.26	543.56

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	147.31	397.34	54.993	7.9004

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE
	3.9964	1188.5	29.222

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	58.573	59.193	158.87	53.955

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	81.051	1.0482	53.369	1445.9

CELL TEMP. = 75.074 HEATER TEMP = 81.866 COOLER TEMP = 44.266

NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDEII REC 04/07/76 21:29:38.925 FAC SEX15 PGM C003 RDG 2968

LEANOUT 25 BTDC I & T 59 DEG HUM = 80 % 3/4 T. CLOSED MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.220 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	60.339	29.223	9.6180	42.875	0.37471	14.353

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	74.755	5.8236	44.786	3.9753	3.9394	6.1767

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	65.431	-0.035978	1.0071	0.00000	76.662	52.986

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	76.662	50.563	61.177	1.4048	0.31382

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.091881	0.091085	1.3714	590.64	592.50	2.7503	0.30930

WET CORRECTION FACTOR = 0.87667 EXHAUST MOLE. WT. = 26.781 EXHAUST DENSITY = 0.069343 EXHAUST FLOW RATE = 680.51

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM NOX PPM CO DRY CO2 DRY O2 DRY	
	19560. 13.597 7.7981 8.70850 1.9240	
CORRECTED CONC. TO WET BASIS		7.6345 1.6867

EMISSION RATE	HC	NOX	CO
	0.47788	0.0011011	3.3732
EMISSION MASS/MODE	0.0079647	1.8352E-05	0.056220
EMISSION MASS/RATED HP	4.9779E-05	1.1470E-07	0.00035137
MODE EMIS./STD. CYCLE %	2.6200	0.0076467	0.83660

CAL. FUEL AIR RATIO = 0.089241 MEAS. FUEL AIR RATIO = 0.091881 DIFF MEAS. & CAL. F/A PERCENT = -2.8727

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	270.17	281.64	265.00	320.13

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1201.3	-454.00	-38.034	395.20	525.68	523.01

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	143.84	276.07	46.753	= 10.914

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	8.8353	585.48	= 29.029

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	59.590	60.339	127.77	54.584

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	81.500	2.9890	53.342	2389.7

CELL TEMP. = 75.615 HEATER TEMP = 81.769 COOLER TEMP = 44.819

NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDEII REC 04/07/76 21:36:46.420 FAC SEX15 PGM C003 RDG 2970

LEANOUT I. & I. 25 BTDC, 59 DEG HUM=80% NEUTRAL MCRF = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.220 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS.	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	58.135	29.213	11.767	52.473	0.45812	14.352

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	72.320	5.7960	44.850	5.6960	5.0645	6.1749

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	63.204	-0.037639	0.89171	0.00000	82.854	52.956

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	82.854	0.28403	61.114	1.4034	0.79851

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.096516	0.095681	1.4405	584.70	580.38	7.0840	0.78866

WET CORRECTION FACTOR = 0.87684 EXHAUST MOLE. WT. = 26.458 EXHAUST DENSITY = 0.068507 EXHAUST FLOW RATE = 846.57

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	33881	6.82780
NOX PPM	6.5737	3.3597
CO DRY	9.2158	2.9466
CO2 DRY	8.0808	

CORRECTED CONC. TO WET BASIS	HC	NOX	CO
EMISSION RATE	1.0297	0.00066224	4.9665
EMISSION MASS/MODE	0.017162	1.1037E-05	0.082775
EMISSION MASS/RATED HP	0.00010726	6.8993E-09	0.00051735
MODE EMIS./STD. CYCLE %	5.6454	0.0045989	1.2318

CAL. FUEL AIR RATIO = 0.097405 MEAS. FUEL AIR RATIO = 0.096516 DIFF MEAS. & CAL. F/A PERCENT = 0.92134

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	262.68	275.90	252.28	522.41

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1474.5	-454.00	-80.574	392.28	529.49	526.91

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	143.33	218.16	46.757	11.884

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	4.2124	574.26	29.672

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	57.420	58.135	148.69	54.353

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	79.296	1.1066	53.297	1487.4

CELL TEMP. = 73.183 HEATER TEMP = 80.838 COOLER TEMP = 45.253

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NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDEII REC 04/07/76 21:40:08.408 FAC SEX15 PGM C003 RDG 2971

LEANOUT I & T 25 BTDC, 59 DEG HUM=80% NEUTRAL MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.220 RATE HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	57.973	29.215	19.956	89.056	0.77936	14.357

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	72.542	5.7441	44.844	9.9488	8.5118	6.1581

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	63.707	-0.030443	0.99190	0.00000	83.568	53.031

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	83.568	0.28003	61.259	1.4067	1.1647

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.095578	0.094749	1.4265	1208.1	1210.3	5.0005	1.1502

WET CORRECTION FACTOR = 0.85404 EXHAUST MOLE. WT. = 26.522 EXHAUST DENSITY = 0.068673 EXHAUST FLOW RATE = 1432.1

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM NOX PPM CO DRY CO2 DRY O2 DRY	
	9126.9 20.811 11.160 8.09350 0.27347	
CORRECTED CONC. TO WET BASIS		9.5310 6.9122 0.23355

EMISSION RATE	HC	NOX	CO
	0.46924	0.0035467	9.9095
EMISSION MASS/MODE	0.086027	0.00065022	1.8167
EMISSION MASS/RATED HP	0.00053767	4.0639E-06	0.011355
MODE EMISS./STD. CYCLE %	28.298	0.27092	27.035

CAL. FUEL AIR RATIO = 0.097846 MFAS. FUEL AIR RATIO = 0.095578 DIFF MEAS. & CAL. F/A PERCENT = 2.3726

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	279.32	294.12	280.11	473.15

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1222.6	-454.00	-65.929	479.42	562.85	560.89

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 8.3509
	145.82	283.27	55.265	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.123
	2.5851	1210.4	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	57.420	57.973	139.13	54.189

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	79.631	2.0596	53.296	2008.0

CELL TEMP. = 73.671 HEATER TEMP. = 81.102 COOLER TEMP. = 44.710

NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDEII REC 04/07/76 21:42:52.889 FAC SEX15 PGM C003 RDG 2972

LEANOUT 1 & Y 25 BTDC, 59 DEG HUM=80% NEUTRAL MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.220 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	58.596	29.221	20.180	89.948	0.79064	14.353

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	72.738	5.7459	44.839	9.6828	8.4368	6.1506

COOLING AIR	TEMP	MODEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	64.435	-0.027953	0.84937	0.00000	82.049	53.141

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	82.049	34.629	61.530	1.4129	1.5376

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.093797	0.092980	1.4000	1196.9	1197.1	6.6590	1.5176

WET CORRECTION FACTOR = 0.84725 EXHAUST MOLE. WT. = 26.646 EXHAUST DENSITY = 0.058993 EXHAUST FLOW RATE = 1437.5

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	9246.8	19.606	11.179	8.0531	0.26687	
CORRECTED CONC. TO WET BASIS			9.4712	6.8229	0.22610	

	HC	NOX	CO
EMISSION RATE	0.47719	0.0033538	9.8842
EMISSION MASS/MODE	0.023859	0.00016769	0.49421
EMISSION MASS/RATED HP	0.00014912	1.0481E-06	0.0030888
MODE EMIS./STD. CYCLE %	7.8485	0.069870	7.3543

CAL. FUEL AIR RATIO = 0.098127 MEAS. FUEL AIR RATIO = 0.093797 DIFF MEAS. & CAL. F/A PERCENT = 4.6163

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	292.59	305.21	294.16	332.91

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1211.0	-454.00	-26.055	512.08	576.79	574.93

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	148.02	227.68	54.533	= 8.4071

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	10.175	1189.8	= 29.330

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	58.018	58.596	71.755	54.603

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	79.993	1.0392	53.308	1441.1

CELL TEMP. = 73.858 HEATER TEMP = 82.269 COOLER TEMP = 45.398



NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDEII REC.04/07/76 21:46:11.041 FAC SEX15 PGM C003 RDG 2973

LEANOUT I & I 25 BTDC, 59 DEG HUM=80% NEUTRAL MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.210 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.554	29.215	11.637	51.865	0.45302	14.342

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	73.876	5.7930	44.809	3.9756	5.0675	6.1647

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	64.695	-0.030167	0.93710	0.00000	78.736	52.951

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	78.736	13.395	61.142	1.4040	0.52262

ENG. COND.	F/A DRY	F/A WET	EQU. PATIO	RPM-1	RPM-2	TORQUE	BHP
	0.097706	0.096860	1.4583	598.26	602.22	4.5254	0.51550

WET CORRECTION FACTOR = 0.89499 EXHAUST MOLE. WT. = 26.378 EXHAUST DENSITY = 0.068299 EXHAUST FLOW RATE = 840.21

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY
	30953.	6.6487	9.1569	6.9373
CORRECTED CONC. TO WET BASIS			8.1038	6.1394

EMISSION RATE	HC	NOX	CO
	0.93366	0.00066477	4.9433
EMISSION MASS/MODE	0.015561	1.1079E-05	0.082387
EMISSION MASS/RATED HP	9.7256E-05	6.9247E-08	0.00051492
MODE EMIS./STD. CYCLE	5.1187	0.0046164	1.2760

CAL.FUEL AIR RATIO = 0.095973 MEAS. FUEL AIR RATIO = 0.097706 DIFF MEAS.& CAL. F/A PERCENT = -1.7738

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	250.79	261.73	240.42	501.14

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1426.3	-454.00	-151.68	463.56	520.47	516.61

ENGINE OIL	EOILT	SOILT	OIL°	MANIFOLD PRESSURE = 11.531
	145.21	358.91	46.737	

DYNO COND.	TORQUE	RPM	CYL.BACK PRESSURE = 29.394
	2.1170	592.86	

INDUCTION AIR	IAIRT1	IAIRT2	IAIRT1	IAIRT2
	58.786	59.554	67.964	54.307

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	80.408	1.0872	53.301	1473.0

CELL TEMP. = 74.134 HEATER TEMP = 80.658 COOLER TEMP = 45.579

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NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDEII REC 04/07/76 21:57:00.676 FAC SEX15 PGM C003 RDC 2974

LEANOUT 25 BLOC I & I 59 DEG HUM = 80 3/4 I OPEN MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.210 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	57.855	29.209	13.355	59.595	0.51954	14.346

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	71.500	5.7621	44.872	3.9829	6.3516	6.1500

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	63.347	-0.0058119	0.88064	0.00000	83.538	52.906

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	83.538	0.32003	61.025	1.4013	0.74357

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10658	0.10566	1.5907	605.94	613.98	6.3673	0.73462

WET CORRECTION FACTOR = 0.89100 EXHAUST MOLE. WT. = 25.810 EXHAUST DENSITY = 0.066829 EXHAUST FLOW RATE = 994.57

MEASURED CONC.	PART PER MILLION WET	HC PPM	NOX PPM	CO DRY	PER CENT	CO2 DRY	O2 DRY
		38113.	5.4285	10.560		5.97400	3.3323
CORRECTED CONC. TO WET BASIS				9.4976		5.3228	2.9691

EMISSION RATE	HC	NOX	CO
	1.3609	0.00064249	6.8578
EMISSION MASS/MODE	0.022681	1.0708E-05	0.11430
EMISSION MASS/RATED HP	0.00014176	5.5926E-08	0.00071436
MODE FMIS./STD. CYCLE %	7.4608	0.0044617	1.7008

CAL. FUEL AIR RATIO = 0.10460 MEAS. FUEL AIR RATIO = 0.10658 DIFF MEAS. & CAL. F/A PERCENT = -1.8554

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	287.77	302.70	282.03	256.57

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1062.9	-454.00	136.29	494.76	577.83	576.92

ENGINE CIL	EDILT	SDILT	OILP	MANIFOLD PRESSURE
	146.32	295.91	46.873	12.365

DYNO COND.	TORQUE	RPM	CYL. RACK PRESSURE
	9.4041	606.84	29.176

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	57.140	57.855	107.97	53.813

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	78.713	2.0089	53.325	1586.2

CELL TEMP. = 73.005 HEATER TEMP = 79.602 COOLER TEMP = 44.574

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NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDETT REC 04/07/76 22:00:42.863 FAC SEX15 PGM C003 RDG 2975

LEANOUT 25 BTDC I & T 59 DEG HUM = 80 % 3/4 T OPEN MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.210 RATED HP. = 160.00 HC RATIO = 2.1250

CCMB. AIR	TEMP.	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	57.855	29.212	23.564	105.11	0.91566	14.346

CCMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	71.964	5.6915	44.859	12.882	11.416	6.1449

CCCLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	64.003	-0.042067	0.95288	0.00000	83.476	52.886

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	83.476	15.068	60.978	1.4003	1.1353

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10861	0.10767	1.6210	1199.9	1202.1	4.9088	1.1215

WET CORRECTION FACTOR = 0.87200 EXHAUST MOLE WT. = 25.689 EXHAUST DENSITY = 0.066514 EXHAUST FLOW RATE = 1765.7

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	19324.	7.8338	12.748	6.71470	0.68475
CORRECTED CONC. TO WET BASIS			11.117	5.8553	0.59710

	HC	NOX	CO
EMISSION RATE	1.2250	0.0016460	14.251
EMISSION MASS/MODE	0.22458	0.00030177	2.6126
EMISSION MASS/RATED HP	0.0014036	1.9861E-06	0.016329
MODE EMIS./STD. CYCLE %	73.876	0.12574	38.878

CAL. FUEL AIR RATIO = 0.10850 MEAS. FUEL AIR RATIO = 0.10861 DIFF MEAS. & CAL. F/A PERCENT = -0.099335

CYL TEMP. DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	285.09	304.78	290.88	362.15

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1571.8	-454.00	185.27	618.43	590.62	597.98

ENGINE OIL	EDILT	SDILT	OILP	MANIFOLD PRESSURE
	149.91	271.62	54.597	= 9.5270

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	6.6103	1196.5	= 29.291

INDUCTION AIR	IAIPT1	IAIRT2	TAIRT1	TAIRT2
	57.303	57.855	78.005	54.007

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	79.066	1.0494	53.298	1449.3

CELL TEMP. = 73.414 HEATED TEMP = 80.665 COOLER TEMP = 45.398

NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDEII REC 04/07/76 22:01:07.579 FAC SEX15 PGM C003 RDG 2976

LEANOUT 25 BTDC I & T 59 DEG HUM = 80 % 3/4 T OPEN MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.220 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	58.054	29.220	23.984	107.03	0.93323	14.359

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIF
	72.044	5.6880	44.857	12.994	11.566	6.1452

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT
	64.048	-0.019927	0.97612	0.00000	83.034	52.936

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	83.034	0.27603	61.035	1.4016	1.2566

SAG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10807	0.10713	1.6129	1203.2	1204.0	5.4172	1.2410

WET CORRECTION FACTOR = 0.86908 EXHAUST MOLE. WT. = 25.721 EXHAUST DENSITY = 0.066597 EXHAUST FLOW RATE = 1794.8

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	19127.	7.6988	12.819	6.6923	0.61778
CORRECTED CONC. TO WET BASIS			11.141	5.8161	0.53690

	HC	NOX	CO
EMISSION RATE	1.2325	0.0016443	14.517
EMISSION MASS/MODE	0.061623	8.2215E-05	0.72593
EMISSION MASS/RATED HP	0.00038515	5.1384E-07	0.0045364
MODE EMISS./STD. CYCLE %	20.271	0.034256	10.801

CAL.FUEL AIR RATIO = 0.10898 MEAS. FUEL AIR RATIO = 0.10807 DIFF MEAS.& CAL. F/A PERCENT = 0.84223

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	279.05	299.14	285.74	424.20

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	991.65	-454.00	118.30	193.57	590.23	588.32

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	149.44	-318.70	54.861	9.5294

DYNO COND.	TORQUE	RPM	CYL.BACK PRESSURE
	4.2412	1195.9	29.215

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	57.484	58.054	121.57	54.278

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	79.181	1.0517	53.342	1450.7

CELL TEMP. = 73.405 HEATER TEMP = 80.456 COOLER TEMP = 47.160

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NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDE11 REC 04/07/76 22:07:22.032 FAC SEX15 PGM C003 RDG 2978

LEANOUT 25.81DC I & I 59 DEG HUM = 80 3/4 I OPEN MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.220 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.554	29.218	13.588	60.616	0.53108	14.354

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIF
	73.183	5.7561	44.827	3.9755	6.5286	6.1731

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	64.955	-0.032104	0.92797	0.00000	79.040	53.056

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	79.040	13.317	61.329	1.4083	0.31056

EAG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10770	0.10677	1.6075	608.88	611.82	2.6419	0.30629

WET CORRECTION FACTOR = 0.89860 EXHAUST MOLE. WT. = 25.742 EXHAUST DENSITY = 0.056653 EXHAUST FLOW RATE = 1015.3

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	41073.	5.1615	10.351	5.78050	3.7364	
CORRECTED CONC. TO WET BASIS			9.3018	5.1943	3.3575	

	HC	NOX	CO
EMISSION RATE	1.4971	0.00062364	6.8567
EMISSION MASS/MODE	0.024952	1.0394E-05	0.11428
EMISSION MASS/RATED HP	0.00015595	5.4963E-08	0.00071424
MODE EMIS./STD. CYCLE	8.2080	0.0043309	1.7006

CAL. FUEL AIR RATIO = 0.10421 MEAS. FUEL AIR RATIO = 0.10770 DIFF MEAS. & CAL. F/A PERCENT = -3.2477

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	269.97	287.01	265.47	358.46

EXT GAS TEMP DEG. F	FXT-1	FXT-2	FXT-3	FXT-4	SEXT-1	SEXT-2
	1388.4	-454.00	159.70	632.14	597.37	595.25

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	147.13	266.40	46.841	12.794

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE
	10.967	604.44	29.526

INDUCTION AIR	IAIPT1	IAIPT2	TAIRT1	TAIPT2
	59.858	59.554	80.947	54.267

ORIFICE AIR	TEMP	DELTAP	ORIF	FLOW
	80.090	2.0642	53.301	2009.3

CELL TEMP. = 74.133 HEATER TEMP = 80.783 COOLER TEMP = 45.018

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NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDEII REC 04/07/76 22:11:21.643 FAC SEX15 PGM C003 RDG 2979

LEANOUT 25 BTDC L & T 59 DEG HUM = 80 % 1 1/2 T OPEN MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.220 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	60.240	29.213	15.182	67.700	0.59215	14.352

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	73.734	5.7402	44.813	3.9777	7.3417	6.1524

COOLING AIR	TEMP	DELT-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	65.485	-0.027122	0.84439	0.00000	76.989	53.006

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	76.989	41.102	61.226	1.4060	1.0897

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10845	0.10750	1.6186	614.70	615.12	9.1759	1.0740

WET CORRECTION FACTOR = 0.90101 EXHAUST MOLE. WT. = 25.698 EXHAUST DENSITY = 0.066539 EXHAUST FLOW RATE = 1136.7

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM NOX PPM CO DRY	CO2 DRY O2 DRY
	45614. 4.7495 10.467	5.34400 4.2908
CORRECTED CONC. TO WET BASIS		4.8150 3.8661

EMISSION RATE	HC	NOX	CO
EMISSION MASS/MODE	1.8614	0.00064244	7.7829
EMISSION MASS/RATED HP	0.031023	1.0707E-05	0.12972
MODE EMIS./STD. CYCLE %	0.00019389	6.5921E-08	0.00081072
	10.205	0.0044614	1.9303

CAL. FUEL AIR RATIO = 0.10563 MEAS. FUEL AIR RATIO = 0.10845 DIFF MEAS. & CAL. F/A PERCENT = -2.5968

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	259.48	278.89	258.95	396.53

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	FXT-4	SEXT-1	SEXT-2
	999.76	-454.00	176.20	644.63	569.32	566.67

ENGINE OIL	OILT	SOILT	OILP	MANIFOLD PRESSURE
	144.62	423.16	47.161	13.147

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	6.1134	607.92	28.915

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	59.563	60.240	53.570	54.362

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	80.646	2.0433	53.427	1998.6

CELL TEMP. = 75.181 HEATER TEMP = 79.560 COOLER TEMP = 46.790

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NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDEII REC 04/07/76 22:14:04.855 FAC SEX15 PGM C003 RDG 2980

LEANOUT 25 BTDC I & T 59 DEG HUM = 80 % 1 1/2 T OPEN MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.220 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	60.303	29.233	25.297	112.79	0.99219	14.360

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	73.716	5.6811	44.813	13.648	12.214	6.1446

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	66.274	-0.021310	0.95426	0.00000	77.297	53.176

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	77.297	30.189	61.578	1.4140 1.4863

ENG. COND.	F/A DRY	F/A WET	EQ. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10829	0.10735	1.6163	1201.7	1203.2	6.4006	1.4645

WET CORRECTION FACTOR = 0.86538 EXHAUST MOLE. WT. = 25.707 EXHAUST DENSITY = 0.066562 EXHAUST FLOW RATE = 1892.9

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	NOX PPM	CO DRY
20971.	7.2437	13.004
		6.5783D
CORRECTED CONC. TO WET BASIS		11.254
		5.6927
		0.55523

EMISSION RATE	HC	NOX	CO
	1.4251	0.0016317	15.465
EMISSION MASS/MODE	0.26126	0.00029914	2.8353
EMISSION MASS/RATED HP	0.0016329	1.8696E-06	0.017721
MODE EMIS./STD. CYCLE %	85.942	0.12464	42.192

CAL. FUEL AIR RATIO = 0.11071 MEAS. FUEL AIR RATIO = 0.10829 DIFF MEAS. & CAL. F/A PERCENT = 2.2339

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	298.13	315.39	303.24	264.07

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	942.65	454.00	459.39	747.86	640.87	639.84

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	148.98	322.16	54.577	9.8609

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	0.34563	1202.2	29.239

INDUCTION AIR	IAIPT1	IAIPT2	TAIRT1	TAIRT2
	59.780	60.303	105.57	54.713

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	80.893	1.0644	53.432	1457.0

CELL TEMP. = 75.447 HEATED TEMP = 79.338 COOLER TEMP = 47.965

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NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDE11 REC 04/07/76 22:14:25.836 FAC. SEX15 PGM C003 RDG 2981  
 LEANOUT 25 BTDC I & T 59 DEG HUM = 80 % 1 1/2 T OPEN MODE = 6.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.220 RATED HP = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	60.330	29.227	25.665	114.41	1.0057	14.357
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	73.938	5.6781	44.807	14.130	12.655	5.1419
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	66.327	-0.021864	0.87704	0.00000	77.153	53.151
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP	
	77.153	16.442	61.535	1.4131	1.8085	
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE
	0.11061	0.10965	1.6510	1202.2	1202.3	7.7841
						BHP
						1.7818

 WET CORRECTION FA TR = 0.87407 EXHAUST MOLE. WT. = 25.571 EXHAUST DENSITY = 0.066210 EXHAUST FLOW RATE = 1934.3  

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY
	21260.	7.0897	12.958	6.54460
CORRECTED CONC. TO WET BASIS			11.327	5.7205
				0.75371
				0.65880

EMISSION RATE	HC	NOX	CO
	1.4763	0.0016319	15.906
EMISSION MASS/MODE	0.073817	8.1596E-05	0.79530
EMISSION MASS/RATED HP	0.00046135	5.0998E-07	0.0049706
MODE EMIS./STD. CYCLE %	24.282	0.033998	11.835

 CAL. FUEL AIR RATIO = 0.11022 MEAS. FUEL AIR RATIO = 0.11061 DIFF MEAS. & CAL. F/A PERCENT = -0.35246  

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	291.80	313.44	297.09	306.28
EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4
	1349.4	-454.00	406.67	548.05
				SEXT-1
				628.25
				SEXT-2
				626.74
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 9.9603
	149.14	-101.64	55.021	
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.323	
	8.0432	1195.4		
INDUCTION AIR	IAIPT1	IAIRT2	TAIRT1	TAIRT2
	59.843	60.330	57.350	54.706
ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	80.822	2.0122	53.282	1983.9
CELL TEMP. = 75.642	HEATER TEMP = 79.303	COOLER TEMP = 47.702		

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NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDEII REC 04/07/76 22:18:52.611 FAC SEX15 PGM C003 RDG 2982

LEANOUT 25 BTDC I & T 59 DEG HUM = 80 % 1 1/2 T OPEN MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.220 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.117	29.216	15.374	68.482	0.60265	14.350

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	71.322	5.7390	44.876	3.9851	7.4047	6.1758

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	63.662	-0.022694	0.92880	0.00000	83.549	53.166

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	83.549	0.27403	61.501	1.4146	0.68427

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10813	0.10718	1.6138	622.55	622.56	5.7006	0.67573

WET CORRECTION FACTOR = 0.89524 EXHAUST MOLE. WT. = 25.717 EXHAUST DENSITY = 0.066588 EXHAUST FLOW RATE = 1148.7

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	42940.	5.3135	10.714	5.43090	3.8528
CORRECTED CONC. TO WET BASIS			9.5913	4.8620	3.4492

	HC	NOX	CO
EMISSION RATE	1.7708	0.00072633	7.9987
EMISSION MASS/MODE	0.029513	1.2106E-05	0.13331
EMISSION MASS/RATED HP	0.00018446	7.5659E-08	0.00083319
MODE EMISS./STD. CYCLE %	9.7082	0.0050440	1.9838

CAL. FUEL AIR RATIO = 0.10664 MEAS. FUEL AIR RATIO = 0.10913 DIFF MEAS. & CAL. F/A PERCENT = -1.3707

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	248.66	273.70	249.57	498.77

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1316.2	-454.00	356.47	722.03	569.63	567.06

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	146.14	318.32	46.945	13.062

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	7.7768	617.46	28.696

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	57.448	58.117	52.302	54.813

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	78.192	1.0382	53.265	1442.9

CELL TEMP. = 72.622 HEATED TEMP = 79.039 COOLER TEMP = 48.443

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NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDEII REC 04/07/76 22:52:43.636 FAC SFX15 PGM C003 RDG 2983

LEANOUT 25 BIDC 1 & T 100 DEG HUM = 0 % 1 1/2 T CLOS MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	97.547	29.228	11.543	47.922	-8.5138E-05	14.358

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	75.669	5.8559	44.762	3.9714	3.0423	6.1962

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	99.179	-0.024355	0.91496	0.00000	-0.0046485	-31.592

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	-0.0046485	44.898	-0.012436	-0.00028558	0.58324

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.063484	0.063485	0.94753	579.66	582.78	5.0922	0.56202

WET CORRECTION FACTOR = 0.89143 EXHAUST MOLE. WT. = 28.811 EXHAUST DENSITY = 0.074599 EXHAUST FLOW RATE = 683.17

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	NOX PPM	CO2 DRY
17697.	36.570	10.5040
CORRECTED CONC. TO WET BASIS		4.8257
		4.3018

EMISSION RATE	HC	NOX	CO
EMISSION MASS/MODE	0.43405	0.0029730	0.51112
EMISSION MASS/RATED HP	0.0072342	4.9550E-05	0.0085186
MODE EMIS./STD. CYCLE %	4.5214E-05	3.0969E-07	5.3241E-05
	2.3797	0.020646	0.12676

CAL. FUEL AIR RATIO = 0.063821 MEAS. FUEL AIR RATIO = 0.063484 DIFF MEAS. & CAL. F/A PERCENT = 0.53085

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	248.48	283.26	271.18	418.74

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SFXT-1	SEXT-2
	572.01	-326.65	122.42	554.93	548.88	545.34

ENGINE OIL	EILT	SOILT	DILT	MANIFOLD PRESSURE
	153.72	220.46	45.937	= 11.758

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	5.0405	575.76	= 29.400

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	99.920	97.547	122.19	100.49

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	79.455	0.092209	53.287	329.55

CELL TEMP. = 75.323 HEATER TEMP = 129.42 COOLER TEMP = 129.46

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NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDELL REC 04/07/76 22:56:36.073 FAC SEX15 PGM C003 RDC 2984

LEANDUT 25 BTDC I & T 100 DEG MM = 0.8 1 1/2 T CLOS MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.220 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	97.719	29.210	19.302	78.524	-0.0016524	14.355

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	74.107	5.8047	44.803	7.3586	6.0036	6.1635

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	97.607	-0.035425	1.0539	0.00000	-0.054691	-32.577

RFL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	-0.054691	43.816	-0.14711	-0.0033792	1.1992

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.076359	0.076360	1.1397	1207.7	1209.1	5.0255	1.1556

WET CORRECTION FACTOR = 0.85402 EXHAUST MLE. WT. = 27.976 EXHAUST DENSITY = 0.072438 EXHAUST FLOW RATE = 1168.2

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	O2 DRY
	2319.6	62.400	5.3213	11.3940
CORRECTED CONC. TO WET BASIS			4.5274	9.7309

	HC	NOX	CO
EMISSION RATE	0.097285	0.0086750	3.8399
EMISSION MASS/MODE	0.017836	0.0015904	0.70399
EMISSION MASS/RATED HP	0.00011147	9.9401E-06	0.0043999
MODE EMIS./STD. CYCLE %	5.8670	0.66267	10.476

CAL. FUEL AIR RATIO = 0.078964 MEAS. FUEL AIR RATIO = 0.076359 DIFF MEAS. & CAL. F/A PERCENT = 3.4121

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	273.09	297.95	287.13	554.22

FXT GAS TEMP DEG.F	FXT-1	EXT-2	EXT-3	EXT-4	SFXT-1	SEXT-2
	795.62	-418.20	21.507	572.46	533.47	531.85

ENGINE OIL	EQILT	SOILT	OIL <sup>2</sup>	MANIFOLD PRESSURE
	153.45	350.70	54.949	7.7131

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	10.009	1201.1	29.383

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIPT2
	98.920	97.719	173.86	102.23

ORIFICE AIR	TEMP	DELTAP	QPEP	FLOW
	77.811	2.0050	53.279	1986.0

CELL TEMP. = 73.334 HEATER TEMP = 156.64 COOLER TEMP = 137.70

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NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDETT REC 04/07/76 22:56:57.406 FAC SEX15 PGM C003 R0G 2985

LEANDUT 25 BTDC 1 & T 100 DEG HUM = 0 % 1 1/2 T CLOS MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.220 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	97.650	29.216	19.323	79.833	-0.0016860	14.352

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	73.716	5.8047	44.813	7.4497	6.0576	6.1671

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	97.495	-0.035978	0.92382	0.00000	-0.055065	-32.582

RFL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	-0.055065	14.939	-0.14783	-0.0033948	1.2754

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.075878	0.075880	1.1325	1206.4	1207.6	5.3505	1.2290

WET CORRECTION FACTOR = 0.85161 EXHAUST MOLE. WT. = 28.016 EXHAUST DENSITY = 0.072541 EXHAUST FLOW RATE = 1184.0

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	2236.4	63.332	5.2860	11.4140	0.10649	
CORRECTED CONC. TO WET BASIS			4.5016	9.7205	0.090699	

	HC	NOX	CO
EMISSION RATE	0.095061	0.0089233	3.8695
EMISSION MASS/MODE	0.0047530	0.00044617	0.19348
EMISSION MASS/RATED HP	2.9707E-05	2.7885E-06	0.0012092
MODE EMIS./STD. CYCLE %	1.5635	0.18590	2.8791

CAL.FUEL AIR RATIO = 0.079018 MEAS. FUEL AIR RATIO = 0.075878 DIFF MEAS. & CAL. F/A PERCENT = 4.1378

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	274.23	297.64	287.03	414.69

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1069.2	-454.00	-80.023	81.777	526.73	525.07

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	153.06	-26.756	55.109	7.7213

DYNO COND.	TORQUE	RPM	CYL BACK PRESSURE
	7.7696	1210.7	29.575

INDUCTION AIR	IAIRT1	IAIPT2	TAIRT1	TAIRT2
	98.212	97.650	168.28	103.00

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	77.360	1.0568	53.201	1456.7

CELL TEMP. = 72.880 HEATER TEMP = 152.78 COOLER TEMP = 139.50

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NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDEIT REC 04/07/76 23:06:42.918 FAC SEX15 PGM C003 RDG 2988

LEANOUT 25 BTDC I & T 100 DEG HUM = 0 % I 1/2 T CLOS MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	97.495	29.228	11.751	48.908	-0.0010332	14.358

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	73.716	5.8626	44.813	3.9794	3.1113	5.1577

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	97.927	-0.028506	0.93074	0.00000	-0.053757	-32.552

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	-0.053757	17.932	-0.14359	-0.0032972	0.65287

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.063616	0.063617	0.94949	501.56	601.02	5.4922	0.62907

WET CORRECTION FACTOR = 0.87210 EXHAUST MOLE. WT. = 28.809 EXHAUST DENSITY = 0.074593 EXHAUST FLOW RATE = 697.36

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	NOX PPM	CO DRY
15942.	33.495	1.5501
CORRECTED CONC. TO WET BASIS		CO2 DRY
		10.8240
		3.9136
		3.4130

EMISSION RATE	HC	NOX	CO
EMISSION MASS/MODE	0.39913	0.0027796	0.68441
EMISSION MASS/RATED HP	0.0066521	4.5327E-05	0.011407
MODE EMIS./STD. CYCLE %	4.1576E-05	2.8955E-07	7.1292E-05
	2.1882	0.019303	0.16974

CAL. FUEL AIR RATIO = 0.066684 MEAS. FUEL AIR RATIO = 0.063615 DIFF MEAS. & CAL. F/A PERCENT = 4.8225

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	258.10	292.19	283.18	380.72

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1306.6	454.00	52.210	504.94	500.00	497.58

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 11.349
	151.41	404.89	46.537	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.401
	1.7642	598.92	

INDUCTION AIR	TAIRT1	TAIPT2	TAIRT1	TAIRT2
	99.015	97.495	137.08	99.078

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	77.882	1.0679	53.339	1463.5

CELL TEMP. = 73.822 HEATER TEMP = 147.71 COOLER TEMP = 124.64

NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDEII REC 04/07/76 23:14:30.876 FAC SEX15 PGM C003 RDG 2990

LEANOUT 25 BIDC I & T 100 DEG HUM = 0% 3/4 T CLOSED MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	100.49	29.236	10.474	43.209	-0.00028837	14.359

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	75.207	5.8278	44.774	3.9708	3.9784	6.1743

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	100.70	-0.0044281	0.95588	0.00000	-0.015978	-31.847

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	-0.015978	37.264	-0.046716	-0.0010728	0.82533

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.092073	0.092073	1.3742	601.44	603.06	6.9257	0.79310

WET CORRECTION FACTOR = 0.89638 EXHAUST MOLE. WT. = 26.768 EXHAUST DENSITY = 0.059308 EXHAUST FLOW RATE = 680.84

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	21838.	13.714	8.0488	8.09890	2.7543	
CORRECTED CONC. TO WET BASIS			7.2148	7.2597	2.4689	

	HC	NOX	CO
EMISSION RATE	0.53377	0.0011111	3.5662
EMISSION MASS/MODE	0.0088961	1.8519E-05	0.059436
EMISSION MASS/RATED HP	5.5601E-05	1.1574E-07	0.00037148
MODE EMIS./STD. CYCLE %	2.9264	0.0077162	0.88447

CAL. FUEL AIR RATIO = 0.088343 MEAS. FUEL AIR RATIO = 0.092073 DIFF MEAS. & CAL. F/A PERCENT = -4.0503

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	276.03	289.20	256.89	362.59

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	757.15	-394.19	-198.16	329.71	479.18	476.92

ENGINE OIL	OIL1	OIL2	OIL3	MANIFOLD PRESSURE
	148.64	330.92	46.753	10.617

DYNO COND.	TORQUE	RPM	CYL BACK PRESSURE
	1.7786	586.62	29.341

INDUCTION AIR	IAIRT1	IAIPT2	TAIRT1	TAIRT2
	102.02	100.49	74.999	104.10

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	78.828	0.094009	53.299	334.74

CELL TEMP. = 75.296 HEATER TEMP = 132.17 COOLER TEMP = 135.61

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NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDELL REC 04/07/76 23:17:28.668 FAC SEX15 PGM C003 RDG 2991

LEANOUT 25 BTDC I & T 100 DEG HJM = 0% 3/4 T CLOSED MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP.	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	99.843	29.219	19.090	78.827	-0.00073987	14.360

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	72.622	5.7837	44.842	8.1903	6.7477	6.1565

COOLING AIR	TEMP	UNEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	99.455	-0.036809	0.95896	0.00000	-0.022914	-31.987

PFL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	-0.022914	52.777	-0.055701	-0.0015087 1.2029

ENG. COND.	F/A DRY	F/A WET	FQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.085600	0.085601	1.2776	1202.9	1203.4	5.0505	1.1568

WET CORRECTION FACTOR = 0.85550 EXHAUST MILE. WT. = 27.244 EXHAUST DENSITY = 0.070541 EXHAUST FLOW RATE = 1213.1

MEASURED CONC.	PART PER MILLION WET		PER CENT
	HC PPM	NOX PPM	
	4294.2	44.046	
CORRECTED CONC. TO WET BASIS			

	HC	NOX	CO
EMISSION RATE	0.18702	0.0063586	6.6641
EMISSION MASS/MODE	0.034286	0.0011657	1.2217
EMISSION MASS/RATED HP	0.00021429	7.2858E-06	0.0076359
MODE EMIS./STD. CYCLE %	11.278	0.48572	18.181

CAL. FUEL AIR RATIO = 0.088690 MEAS. FUEL AIR RATIO = 0.085600 DIFF MEAS. & CAL. F/A PERCENT = 3.6099

CYL TEMP DEG. F.	CYL-1	CYL-2	CYL-3	CYL-4
	287.04	300.46	286.52	387.45

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1413.1	-407.22	-425.84	412.17	473.11	472.36

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 7.6805
	148.89	411.59	54.969	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.346
	1.2745	1189.4	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	101.22	99.843	55.175	103.59

OPIFICE AIR	TEMP	DELTA P	REF	FLOW
	76.191	1.0315	53.267	1440.9

CELL TEMP. = 72.702 HEATER TEMP = 112.39 COOLER TEMP = 126.34

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NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDE11 REC 04/07/76 23:17:50.146 FAC SEX15 PG4 C003 R0G 2992

LEANOUT 25 BTDC I & T 100 DEG HUM = 03 3/4 T CLOSED MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	99.611	29.235	18.908	78.081	-0.0010687	14.356

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	72.667	5.7846	44.841	8.1267	6.6007	6.1668

COOLING AIR	TEMP	UDEL-HOOD	DEL-4000	FLOW	REL-HUM	DEW-POINT
	99.334	-0.0085795	0.94845	0.00000	-0.033639	-32.207

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	-0.033639	19.464	-0.095806	-0.0022000	1.4017

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.084536	0.084537	1.2617	1201.7	1202.9	5.8922	1.3482

WET CORRECTION FACTOR = 0.85132 EXHAUST MOLE. WT. = 27.325 EXHAUST DENSITY = 0.070751 EXHAUST FLOW RATE = 1196.9

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	4404.4	44.270	8.7776	9.57740	0.14787	
CORRECTED CONC. TO WET BASIS			7.4726	8.1535	0.12589	

	HC	NOX	CO
EMISSION RATE	0.18925	0.0063054	6.4931
EMISSION MASS/MODE	0.0094625	0.00031527	0.32466
EMISSION MASS/RATED HP	5.9140E-05	1.9704E-06	0.0020291
MODE EMISS./STD. CYCLE %	3.1126	0.13136	4.8312

CAL. FUEL AIR RATIO = 0.088547 MEAS. FUEL AIR RATIO = 0.084536 DIFF MEAS. & CAL. F/A PERCENT = 4.7448

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	285.46	299.23	285.50	351.29

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1086.8	-454.00	-454.00	-73.821	466.24	465.17

ENGINE OIL	EOILT	SOILT	OILP	MANTIFOLD PRESSURE =
	148.90	0.77603	55.269	7.6480

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE =
	1.9298	1201.3	29.231

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	101.01	99.611	50.135	103.42

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	76.103	3.0116	53.302	2410.4

CELL TEMP. = 72.453 HEATER TEMP = 122.86 COOLER TEMP = 126.87

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NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDELL REC 04/07/76 23:20:21.198 FAC SEX15 PGM C003 RJC 2993

LEANOUT 25 BYDC I & T 100 DEG HUM = 0% 3/4 T CLOSED MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	98.247	29.229	10.687	44.205	0.00020644	14.355

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	73.067	5.8287	44.830	3.9792	3.9544	6.1728

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	98.825	-0.018543	0.95343	0.00000	0.011960	-31.252

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	0.011960	6.2006	0.032691	0.00075069 0.54922

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.089455	0.089455	1.3352	603.66	602.58	4.6005	0.52877

WET CORRECTION FACTOR = 0.87224 EXHAUST MOLE. WT. = 26.957 EXHAUST DENSITY = 0.069797 EXHAUST FLOW RATE = 690.00

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	O2 DRY
	22428.	12.316	8.2649	8.35110
CORRECTED CONC. TO WET BASIS			7.2090	7.2841
				1.8715

EMISSION RATE	HC	NOX	CO
	0.55557	0.0010113	3.6112
EMISSION MASS/MODE	0.0092594	1.5855E-05	0.060187
EMISSION MASS/RATED HP	5.7871E-05	1.0534E-07	0.00037617
MODE EMISS./STD. CYCLE %	3.0459	0.0070228	0.89564

CAL. FUEL AIR RATIO = 0.091415 MEAS. FUEL AIR RATIO = 0.089455 DIFF. MEAS. & CAL. F/A PERCENT = 2.1911

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	267.65	280.17	261.30	532.80

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1836.1	-426.72	-454.00	292.13	435.86	433.45

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 10.734
	147.65	56.858	46.849	

DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.479
	-0.20882	591.84	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	99.895	98.247	43.892	102.41

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	76.245	1.0315	53.350	1440.9

CELL TEMP. = 72.916 HEATER TEMP = 151.77 COOLER TEMP = 128.68

NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDEII REC 04/07/76 23:28:13.729 FAC SEX15 PGM C003 RDG 2995  
 LEANOUT 25 BTDC I & T 100 DEG HUM = 0% NEUTRAL MODE = 1.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP = 160.00 HC RATIO = 2.1250  
 COMB. AIR TEMP 99.956 PRESS 29.229 CFM 12.415 DRY FLOW 51.319 VAPOR FLOW 0.00061316 PRESS TOTAL 14.357  
 COMB. FUEL TEMP 74.293 PRESS 5.7957 DENSITY 44.798 TURBO FLOW 3.9764 FLOW TRON 5.0495 FPIP 6.1719  
 COOLING AIR TEMP 99.654 UDEL-HOOD -0.028229 DEL-HOOD 0.94679 FLOW 0.00000 REL-HUM 0.029062 DEW-POINT -30.862  
 REL-HUM 1 0.029062 2 43.350 HUMIDITY 0.083636 % H2O VAPOR 0.0019206 CORRECTED HP 0.39140  
 ENG. COND. F/A DRY 0.098394 E/A WET 0.098393 EQU. RATIO 1.4686 RPM-1 603.30 RPM-2 605.64 TORQUE 3.2753 BHP 0.37624  
 WET CORRECTION FACTR = 0.88611 EXHAUST MOLE. WT. = 26.332 EXHAUST DENSITY = 0.068179 EXHAUST FLOW RATE = 826.78  
 MEASURED CONC. PART PER MILLION WET PER CENT  
 HC PPM 31719. NOX PPM 6.3406 CO DRY 9.8615 CO2 DRY 6.8313 CO2 DRY 2.9002  
 CORRECTED CONC. TO WET BASIS 8.7384 6.0533 2.5699  
 EMISSION RATE HC 0.94147 NOX 0.00062383 CO 5.2451  
 EMISSION MASS/MODE 0.015691 1.0397E-05 0.087419  
 EMISSION MASS/RATED HP 9.8069E-05 6.4982E-08 0.00054637  
 MODE EMIS./STD. CYCLE % 5.1615 0.0043322 1.3009  
 CAL. FUEL AIR RATIO = 0.099216 MEAS. FUEL AIR RATIO = 0.098394 DIFF. MEAS. & CAL. F/A PERCENT = 0.83579  
 CYL TEMP DEG. F CYL-1 263.70 CYL-2 277.24 CYL-3 255.51 CYL-4 428.35  
 EXT GAS TEMP DEG. F EXT-1 1402.0 EXT-2 177.46 EXT-3 -454.00 EXT-4 271.52 SEXT-1 419.47 SEXT-2 417.50  
 ENGINE OIL EOILT 145.89 SOILT 309.98 OILT 47.049 MANIFOLD PRESSURE = 11.478  
 DYNO COND. TORQUE 0.77768 RPM 605.82 CYL. BACK PRESSURE = 29.320  
 INDUCTION AIR IAIRT1 101.63 IAIRT2 99.956 TAIRT1 86.419 TAIRT2 102.87  
 ORIFICE AIR TEMP 77.396 DELTAP 1.0245 ORFP 53.298 FLOW 1434.5  
 CELL TEMP. = 74.036 HEATER TEMP = 147.18 COOLER TEMP = 127.06

NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDFII REC 04/07/76 23:30:42.614 FAC SFX15 PGM C003 RDG 2996

LEANOUT 25 BTDC I & I 100 DEG HUM = 0% NEUTRAL MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	102.09	29.233	21.114	87.214	0.0015866	14.360

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	74.213	5.7438	44.800	9.6108	8.1968	6.1581

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	100.58	-0.027676	0.97446	0.00000	0.041516	-30.522

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	0.041516	38.128	0.12735	0.0029243 1.7355

ENG. COND.	F/A DRY	F/A WET	EQU. PATIO	RPM-1	RPM-2	TORQUE	BHP
	0.093985	0.093984	1.4028	1202.3	1203.4	7.2757	1.6655

WET CORRECTION FACTOR = 0.85804 EXHAUST MOLE. WT. = 26.633 EXHAUST DENSITY = 0.068958 EXHAUST FLOW RATE = 1383.6

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	8562.9	24.190	11.391	7.96830	0.24606
CORRECTED CONC. TO WET BASIS			9.7739	6.8371	0.21113

	HC	NOX	CO
EMISSION RATE	0.43030	0.0039829	9.8179
EMISSION MASS/MODE	0.078888	0.00073021	1.8000
EMISSION MASS/RATED HP	0.00049305	4.5638E-06	0.011250
MODE EMISS./STD. CYCLE %	25.950	0.30425	26.785

CAL. FUEL AIR RATIO = 0.098407 MEAS. FUEL AIR RATIO = 0.093985 DIFF MEAS. & CAL. F/A PERCENT = 4.7043

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	277.49	290.33	276.38	458.16

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1036.0	484.39	-454.00	265.26	432.82	432.33

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	146.07	188.90	55.714	8.1024

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	7.0711	1198.5	29.368

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	103.44	102.09	72.601	103.38

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	77.909	1.0258	53.507	1434.7

CELL TEMP. = 74.506 HEATER TEMP = 109.49 COOLER TEMP = 122.30

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NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDEIT REC 04/07/76 23:31:04.427 FAC SFX15 PGM C003 RDG 2997

LEANOUT 25 BIDC L & T 100 DEG HUM = 07 NEUTRAL MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	101.99	29.228	20.963	86.657	0.0010270	14.361

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	74.258	5.7405	44.799	9.7652	8.3528	6.1545

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	100.61	-0.022141	0.91911	0.00000	0.027132	-30.867

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	0.027132	0.111	0.082961	0.0019051	1.1923

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.096389	0.096388	1.4386	1201.9	1203.0	5.0005	1.1444

WET CORRECTION FACTOR = 0.86672 EXHAUST MOLF. WT. = 26.467 EXHAUST DENSITY = 0.068529 EXHAUST FLOW RATE = 1386.4

MEASURED CONC.	PART PER MILLION WET		PER CENT
	HC PPM	NOX PPM	CO DRY
	8400.8	24.214	11.385
CORRECTED CONC. TO WET BASIS			CO2 DRY
			8.01140
			0.23156
			0.20070

	HC	NOX	CO
EMISSION RATE	0.41813	0.0039950	9.9320
EMISSION MASS/MODE	0.020907	0.00019975	0.49660
EMISSION MASS/RATED HP	0.00013067	1.2484E-06	0.0031037
MODE EMIS./STD. CYCLE %	6.8772	0.083229	7.3898

CAL. FUEL AIR RATIO = 0.098149 MEAS. FUEL AIR RATIO = 0.096389 DIFF MEAS. & CAL. F/A PERCENT = 1.8259

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	277.42	289.76	276.91	385.98

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1132.6	476.30	-454.00	-288.56	428.70	428.12

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 8.1228
	145.91	9.8598	55.770	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.238
	2.7579	1210.6	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	103.37	101.99	73.660	103.01

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	77.900	1.9567	53.285	1963.1

CELL TEMP. = 74.639 HEATER TEMP = 115.45 COOLER TEMP = 122.69

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NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDEII REC 04/07/76 23:34:07.754 FAC SEX15 PGM C003 RDG 2998  
 LEANOUT 25 BTDC I & T 100 DEG HUM = 0% NEUTRAL MODE = 7.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	101.94	29.225	12.368	49.704	0.0030512	14.355
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	74.710	5.8002	44.787	3.9754	4.8455	6.1590
COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	101.40	-0.026845	0.92880	0.00000	0.14068	-28.042
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP	
	0.14068	28.103	0.42971	0.0098675	0.31372	
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE
	0.097486	0.097480	1.4550	589.08	588.84	2.6836
						BHP
						0.30100
WET CORRECTION FACTOR = 0.89005			EXHAUST MOLE. WT. = 26.393		EXHAUST DENSITY = 0.068337	
					EXHAUST FLOW RATE = 798.29	
MEASURED CONC.	PART PER MILLION WET		PER CENT			
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	31658.	5.5255	9.5927	6.79650	3.1769	
CORRECTED CONC. TO WET BASIS			8.5380	6.0492	2.8276	
EMISSION RATE	HC	NOX	CO			
	0.90728	0.00052491	4.9483			
EMISSION MASS/MODE	0.015121	8.7485E-06	0.082471			
EMISSION MASS/RATED HP	9.4509E-05	5.4678E-08	0.00051544			
MODE EMIS./STD. CYCLE %	4.9741	0.0036452	1.2272			
CAL. FUEL AIR RATIO = 0.097463			MEAS. FUEL AIR RATIO = 0.097486		DIFF. MEAS. & CAL. F/A PERCENT = -0.023050	
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4		
	276.17	287.29	268.91	366.14		
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1359.4	364.21	-454.00	249.48	434.97	433.71
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 11.794		
	146.96	155.02	46.461			
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.177			
	4.0252	575.10				
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2		
	103.67	101.94	48.940	104.76		
ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW		
	78.253	2.9718	45.730	2390.3		
CELL TEMP. = 75.402		HEATER TEMP. = 146.52		COOLER TEMP. = 127.95		



NASA-LEWIS PRELIMINARY DATA 04/07/76 CARDETT REC 04/07/76 23:37:33.250 FAC SEX15 PGM C003 R0G 2999

LEANOUT 25 BTDC I & T 100 DEG HJM = 0% 3/4 T OPEN MODE = 1.0000 NO. SCANS = 4

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	99.871	29.222	14.555	60.004	0.0020853	14.354

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	72.099	5.7591	44.856	3.9785	6.2959	6.1552

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	98.868	-0.022141	0.92229	0.00000	0.084731	-29.598

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	0.084731	44.029	0.24327	0.0055864	0.51435

ENG. COND.	E/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10494	0.10494	1.5563	596.68	597.21	5.1984	0.59060

WET CORRECTION FACTOR = 0.89777 EXHAUST MOLE. WT. = 25.911 EXHAUST DENSITY = 0.067089 EXHAUST FLOW RATE = 988.28

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	39701.	4.3654	10.739	5.68680	3.5861	
CORRECTED CONC. TO WET BASIS			9.6412	5.1055	3.2195	

	HC	NOX	CO
EMISSION RATE	1.4086	0.00051339	6.9175
EMISSION MASS/MODE	0.023476	8.5566E-06	0.11529
EMISSION MASS/RATED HP	0.00014673	5.3479E-08	0.00072057
MODE EMIS./STD. CYCLE %	7.7224	0.0035652	1.7156

CAL. FUEL AIR RATIO = 0.10520 MEAS. FUEL AIR RATIO = 0.10494 DIFF MEAS. & CAL. F/A PERCENT = 0.24991

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	269.65	284.48	266.67	338.82

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	892.54	486.88	-454.00	293.57	434.32	433.37

ENGINE OIL	EOILT	SOILT	DILT	MANIFOLD PRESSURE
	145.66	426.89	46.795	12.575

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	9.1359	596.83	29.193

INDUCTION AIR	IAIRT1	IAIPT2	TAIRT1	TAIRT2
	101.50	99.871	155.89	104.24

ORIFICE AIR	TEMP	DELTAP	ORFD	FLOW
	75.841	3.7457	53.264	2682.7

CELL TEMP. = 72.600 HEATER TEMP = 148.49 COOLER TEMP = 129.13

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NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDELL REC 04/07/76 23:43:05.375 FAC SEX15 PG4 C003 PG6 3001

LEANOUT 25 BTDC I & T 100 DEG HUM = 0% 3/4 T OPEN MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATE HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	101.41	29.225	23.237	95.814	0.0015856	14.358

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	71.946	5.7162	44.860	11.152	9.6580	6.1503

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	99.326	-0.0099633	0.95149	0.00000	0.038536	-30.612

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	0.038536	15.428	0.11584	0.0026602	0.97546

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10080	0.10080	1.5045	1207.2	1206.1	4.0754	0.93675

WET CORRECTION FACTOR = 0.86423 EXHAUST MOLE. WT. = 26.173 EXHAUST DENSITY = 0.067769 EXHAUST FLOW RATE = 1556.4

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC RPM	NOX PPM		CO2 DRY	O2 DRY
	13901.	12.083	12.555	7.13210	0.35882
CORRECTED CONC. TO WET BASIS			10.850	6.1638	0.31010

	HC	NOX	CO
EMISSION RATE	0.77671	0.0022379	12.260
EMISSION MASS/MODE	0.038836	0.00011189	0.61298
EMISSION MASS/RATED HP	0.00024272	6.9934E-07	0.0038311
MODE EMISS./STD. CYCLE %	12.775	0.346622	9.1218

CAL. FUEL AIR RATIO = 0.10529 MEAS. FUEL AIR RATIO = 0.10080 DIFF MEAS. & CAL. F/A PERCENT = 4.4563

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	281.81	297.68	286.50	396.77

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1283.2	678.26	-454.00	-227.72	461.35	461.31

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	147.33	120.66	55.329	8.7117

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	7.7264	1207.4	29.232

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	102.72	101.41	70.067	104.30

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	77.077	2.9807	53.504	2395.3

CELL TEMP. = 72.738 HEATER TEMP. = 141.15 COOLER TEMP = 128.91

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NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDEII REC 04/07/75 23:43:42.698 FAC SEX15 PGM C003 RCG 3002

LEANOUT 25 BTDC 1.6 T 100 DEG HUM = 0% 3/4 T OPEN MODE = 7.0000 N2 SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	101.47	29.228	14.471	59.548	0.0013806	14.359

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	72.667	5.7618	44.841	7.6263	6.3306	6.1632

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	100.24	-0.014668	1.0619	0.00000	0.053891	-30.247

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	0.053891	35.802	0.16229	0.0037268	0.79075

ENG. COND.	F/A DRY	E/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10631	0.10631	1.5867	604.74	607.44	6.5923	0.75907

WET CORRECTION FACTOR = 0.89066 EXHAUST MOLE. WT. = 25.827 EXHAUST DENSITY = 0.066871 EXHAUST FLOW RATE = 985.17

MEASURED CONC.	PART PER MILLION WET	NOX PPM	CO DRY	PER CFNT	CO2 DRY	O2 DRY
	37405.	4.8815	11.248	5.87610	2.8930	
CORRECTED CONC. TO WET BASIS			10.018	5.2337	2.5767	

EMISSION RATE	HC	NOX	CO
	1.3230	0.00057228	7.1653
EMISSION MASS/MODE	0.022049	9.5380E-06	0.11942
EMISSION MASS/RATED HP	0.00013781	5.9613E-08	0.00074639
MODE EMISS./STD. CYCLE %	7.2530	0.0039742	1.7771

CAL. FUEL AIR RATIO = 0.10780 MEAS. FUEL AIR RATIO = 0.10631 DIFF MEAS. & CAL. F/A PERCENT = 1.3964

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	289.12	305.10	289.94	378.43

EXT GAS TEMP DEG.F	FXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1280.1	548.68	-424.55	223.89	484.97	484.53

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	151.79	389.94	46.477	12.304

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	8.7129	609.84	29.161

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	103.16	101.47	57.681	105.46

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	77.201	2.0177	53.311	1993.1

GFL TEMP. = 73.147 HEATER TEMP. = 153.95 COOLER TEMP. = 132.98

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MASA-LEWIS PRELIMINARY DATA 04/07/76 CADDELL REC 04/07/76 23:48:29.540 FAC SFX15 PGM C003 RDG 3004

LEANOUT 25 BYDC I & T 100 DEG HUM = 0% 3/4 T OPEN MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	103.85	29.216	22.204	91.258	0.0026058	14.364

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	73.600	5.7231	44.816	10.699	9.3219	6.1527

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	101.70	-0.014668	0.95675	0.00000	0.051852	-29.947

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	0.061852	25.715	0.19988	0.0045899	1.4713

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10215	0.10215	1.5246	1202.1	1203.8	6.1589	1.4097

WET CORRECTION FACTOR = 0.86903 EXHAUST MOL. WT. = 26.087 EXHAUST DENSITY = 0.067544 EXHAUST FLOW RATE = 1489.1

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	13559.	12.222	12.532	7.17590	0.33469	
CORRECTED CONC. TO WET BASIS			10.891	6.2361	0.29086	

	HC	NOX	CO
EMISSION RATE	0.72488	0.0021659	11.775
EMISSION MASS/MODE	0.13289	0.00039707	2.1587
EMISSION MASS/RATED HP	0.00083059	2.4817E-06	0.013492
MODE EMIS./STD. CYCLE %	43.715	0.16545	32.123

CAL FUEL AIR RATIO = 0.10498 MEAS. FUEL AIR RATIO = 0.10215 DIFF MEAS. & CAL. F/A PERCENT = 2.7762

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	290.12	302.84	294.49	471.33

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1350.8	757.74	-454.00	217.06	482.27	481.96

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	150.31	328.14	54.837	= 8.6001

DYNO COND.	TORQUE	RPM	CYL BACK PRESSURE
	3.1395	1203.2	= 29.291

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	105.28	103.85	45.102	106.37

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	78.086	1.0524	53.320	1452.7

CELL TEMP. = 74.231 HEATER TEMP = 141.22 COOLER TEMP = 128.44

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NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDEII REC 04/07/76 23:52:07.565 FAC SEX15 PGM C003 RDG 3005

LEANOUT 25 BIDC I & I 100 DEG HUM = 0% 1 1/2 T OPEN MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BARMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	103.31	29.239	15.306	62.907	0.0032853	14.354

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	74.267	5.7465	44.799	3.9764	7.0297	6.1632

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLW	REL-HUM	DEW-POINT
	101.94	-0.024631	0.91966	0.00000	0.11487	-28.587

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	0.11487	27.915	0.35557	0.0083946	0.28222

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.11175	0.11174	1.5579	606.54	608.34	2.3419	0.27046

WET CORRECTION FACTOR = 0.90965 EXHAUST MOLE. WT. = 25.506 EXHAUST DENSITY = 0.066041 EXHAUST FLOW RATE = 1059.0

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	O2 DRY
	HC PPM	NOX PPM			
	42738	4.6335	11.209	5.37390	3.5517
CORRECTED CONC. TO WET BASIS			10.197	4.8884	3.2308

EMISSION RATE	HC	NOX	CO
	1.6249	0.00058393	7.8399
	0.027081	9.7322E-06	0.13066
	0.00016926	6.0826E-08	0.00081665
EMISSION MASS/MODE			
EMISSION MASS/RATED HP			
MODE EMISS./STD. CYCLE %	8.9083	0.0040551	1.9444

CAL. FUEL AIR RATIO = 0.10879 MEAS. FUEL AIR RATIO = 0.11175 DIFF MEAS. & CAL. F/A PERCENT = -2.6504

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	272.43	290.24	272.55	455.96

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	645.05	504.54	454.00	294.05	455.66	454.55

ENGINE OIL	EOILT	SOILT	QILT	MANIFOLD PRESSURE
	148.78	245.49	46.725	13.138

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	-0.66967	602.82	29.071

INDUCTION AIR	IAIRT1	IAIRT2	IAIRT1	TAIRT2
	104.98	103.31	77.300	105.97

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	79.322	3.0106	54.133	2402.8

CELL TEMP. = 74.506 HEATER TEMP. = 147.27 COOLER TEMP. = 135.26

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NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDEII REC 04/07/76 23:54:35.981 FAC SEX15 PGM C003 RDG 3006

LEANOUT 25 BTDC 1 & T 100 DEG HUM = 02 1 1/2 T OPEN MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	104.11	29.226	24.145	99.657	0.0049062	14.359

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	74.551	5.7027	44.791	11.818	10.318	6.1455

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLW	REL-HUM	DEW-POINT
	101.76	-0.019650	0.95038	0.00000	0.10578	-28.762

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	0.10578	42.174	0.34462	0.0079136 0.81099

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10354	0.10353	1.5453	1202.9	1203.9	3.3920	0.77692

WET CORRECTION FACTOR = 0.86583 EXHAUST MOLE. WT. = 25.999 EXHAUST DENSITY = 0.067317 EXHAUST FLOW RATE = 1633.8

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	17346.	8.7119	12.988	6.74580	0.50387	
CORRECTED CONC. TO WET BASIS			11.245	5.8407	0.43626	

	HC	NOX	CO
EMISSION RATE	1.0174	0.0016937	13.338
EMISSION MASS/MODE	0.18653	0.00031052	2.4454
EMISSION MASS/RATED HP	0.0011658	1.9407E-06	0.015284
MODE EMIS./STD. CYCLE %	61.358	0.12938	36.389

CAL. FUEL AIR RATIO = 0.10863 MEAS. FUEL AIR RATIO = 0.10354 DIFF MEAS. & CAL. F/A PERCENT = 4.9220

CYL TEMP. DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	288.06	307.69	295.82	419.23

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1168.2	808.41	-252.70	371.54	499.56	499.43

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	150.64	438.13	54.557	= 9.0863

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	0.52565	1195.0	= 29.415

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	105.40	104.11	47.726	103.73

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	79.349	1.0523	53.358	1450.9

CELL TEMP. = 75.269 HEATER TEMP. = 158.86 COOLER TEMP. = 131.92

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NASA-LEWIS PRELIMINARY DATA 04/07/76 CADDEII REC 04/07/76 23:54:57.399 FAC SEX15 PGM C003 RDG 3007

LEANOUT 25 BTDC I & T 100 DEG HUM = 0% I 1/2 T OPEN MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	104.43	29.230	24.498	101.02	0.0049894	14.362

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	74.684	5.6931	44.788	12.453	10.903	6.1434

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	101.99	-0.018266	0.91164	0.00000	0.10516	-28.752

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	0.10516	9.8950	0.34572	0.0079389 1.8107

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10793	0.10792	1.6109	1202.2	1202.3	7.5757	1.7341

WET CORRECTION FACTOR = 0.88006 EXHAUST MLE. WT. = 25.729 EXHAUST DENSITY = 0.066619 EXHAUST FLOW RATE = 1680.2

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	16903.	CO2 DRY 6.77700
NOX PPM	8.2958	O2 DRY 0.47253
CO DRY	12.963	CO DRY 5.9642
CORRECTED CONC. TO WET BASIS	11.408	O2 DRY 0.41585

EMISSION RATE	HC	NOX	CO
	1.0196	0.0016587	13.916
EMISSION MASS/MODE	0.050980	8.2933E-05	0.69580
EMISSION MASS/RATED HP	0.00031862	5.1833E-07	0.0043487
MODE EMIS./STD. CYCLE	16.770	0.034555	10.354

CAL. FUEL AIR RATIO = 0.10822 MEAS. FUEL AIR RATIO = 0.10793 DIFF. MEAS. & CAL. F/A PERCENT = 0.27310

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	287.00	305.60	294.14	355.89

FXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SFXT-1	SEXT-2
	868.22	794.01	299.65	56.833	494.50	494.06

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	150.45	137.35	54.833	9.1971

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE
	4.0252	1195.1	29.161

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	135.75	104.43	73.177	104.39

ORIFICE AIR	TEMP	DELTAP	ORF	FLOW
	79.384	2.0027	53.333	1982.1

CELL TEMP. = 74.995 HEATER TEMP = 158.21 COOLER TEMP = 133.71

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NASA-LEWIS PRELIMINARY DATA 04/08/76 CADDE11 REC 04/07/76 23:58:43.813 FAC SEX15 PGM C003 RDG 3008

LEANOUT 25 BTDC I & T 100 DEG HUM = 0% 1 1/2 T OPEN MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.240 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	101.29	29.232	16.028	65.993	0.0042573	14.362

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	71.794	5.7471	44.864	3.9822	6.9067	6.1590

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	99.567	-0.014945	0.96876	0.00000	0.15079	-27.852

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	0.15079	9.1329	0.45159	0.010370	0.46007

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10466	0.10465	1.5621	602.46	602.94	3.8534	0.44168

WET CORRECTION FACTOR = 0.89615 EXHAUST MOLE. WT. = 25.928 EXHAUST DENSITY = 0.067135 EXHAUST FLOW RATE = 1085.9

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	45140.	4.3694	10.801	5.16520	4.1851
CORRECTED CONC. TO WET BASIS			9.6796	4.6288	3.7505

	HC	NOX	CO
EMISSION RATE	1.7598	0.00056464	7.6313
EMISSION MASS/MODE	0.029330	9.4107E-06	0.12719
EMISSION MASS/RATED HP	0.00018331	5.8817E-08	0.00079492
MODE EMIS./STD. CYCLE %	9.6480	0.0039211	1.8927

CAL. FUEL AIR RATIO = 0.10731 MEAS. FUEL AIR RATIO = 0.10466 DIFF MEAS. & CAL. F/A PERCENT = 2.5343

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	274.18	295.73	275.00	404.10

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1076.9	687.55	-206.97	285.37	491.90	490.79

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE
	151.58	315.55	46.277	13.153

DYN COND.	TORQUE	RPM	CYL. BACK PRESSURE
	10.722	501.80	29.475

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	102.98	101.29	65.575	105.22

DRIFICE AIR	TEMP	DELTAP	ORF	FLOW
	76.820	2.9575	53.264	2388.0

CELL TEMP. = 72.355 HEATER TEMP = 134.09 COOLER TEMP = 130.49

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NASA-LEWIS PRELIMINARY DATA 04/08/76 CADDE11 REC 04/08/76 11:05:17.932 FAC SEX15 PGM C003 RDG 3010

LEANOUT 25 BTDC TO CL APP 100 DEG HUM=0% MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.00C DEG. BAROMETRIC PRESSURE = 29.330 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	102.30	29.343	218.65	941.74	0.26880	14.884

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	71.919	5.3678	44.861	82.815	80.561	6.0201

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	103.50	3.2170	3.9864	10353.	0.67068	-13.405

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	0.67068	15.400	1.9980	0.045880	157.47

ENG. COND.	F/A DRY	F/A WET	FQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.085545	0.085521	1.2768	2704.4	2705.9	285.21	146.86

WET CORRECTION FACTOR = 0.85685 EXHAUST MOLE. WT. = 27.248 EXHAUST DENSITY = 0.070552 EXHAUST FLOW RATE = 14493.

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	O2 DRY
	1695.0	240.80	8.9566	0.099790
CORRECTED CONC. TO WET BASIS			7.6830	0.085505

	HC	NOX	CO
EMISSION RATE	0.88194	0.41533	80.845
EMISSION MASS/MODE	0.0044097	0.0020766	0.40422
EMISSION MASS/RATED HP	2.7561E-05	1.2979E-05	0.0025264
MODE EMIS./STD. CYCLE %	1.4506	0.86527	6.0152

CAL. FUEL AIR RATIO = 0.085921 MEAS. FUEL AIR RATIO = 0.085545 DIFF MEAS. & CAL. F/A PERCENT = 1.6081

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	425.17	446.87	426.40	440.31

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	681.38	-454.00	-349.24	43.082	1279.8	1274.1

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.345
	153.43	179.39	73.803	

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.449
	274.13	2651.5	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	102.40	102.30	-15.085	99.783

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	82.345	1.1039	52.358	1481.4

CELL TEMP. = 76.059 HEATER TEMP = 118.88 COOLER TEMP = 120.02

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NASA-LEWIS		PRELIMINARY DATA		04/08/76	CADDET	REC 04/08/76 11:19:40.324		FAC SEX15	PGM C003	RDG 3013
LEANOUT 25 BTDC TO CL APP 100 DEG HUM=0%				MODE = 5.0000		NO. SCANS = 5				
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.330		RATED HP. = 160.00		HC RATIO = 2.1250		
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL				
	102.80	29.332	112.67	473.75	0.14196	14.526				
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP				
	72.142	5.5361	44.855	42.344	41.236	6.1185				
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT				
	102.90	3.1434	3.8641	10221.	0.67682	-13.020				
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP					
	0.67682	33.061	2.0975	0.048166	69.746					
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP			
	0.087041	0.087015	1.2991	2355.8	2357.9	147.51	66.169			
WET CORRECTION FACTOR = 0.85646		EXHAUST MOLE. WT. = 27.135		EXHAUST DENSITY = 0.070260		EXHAUST FLOW RATE = 7331.8				
MEASURED CONC.	PART PER MILLION WET		PER CENT							
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY					
	1774.2	217.30	9.7484	9.6159	0.15790					
CORRECTED CONC. TO WET BASIS			8.3491	8.2356	0.13523					
EMISSION RATE	HC	NOX	CO							
	0.46698	0.18959	44.441							
EMISSION MASS/MODE	0.046698	0.018959	4.4441							
EMISSION MASS/RATED HP	0.00029186	0.00011850	0.027776							
MODE EMIS./STD. CYCLE %	15.361	7.8997	66.133							
CAL. FUEL AIR RATIO = 0.088649		MEAS. FUEL AIR RATIO = 0.087041		DIFF MEAS. & CAL. F/A PERCENT = 1.8465						
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4						
	345.92	361.86	357.94	353.96						
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2				
	1364.5	-454.00	-191.33	556.26	1071.8	1072.1				
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.928						
	183.09	254.18	70.647							
DYAC COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.471							
	141.26	2303.9								
INDUCTION AIR	TAIPT1	TAIRT2	TAIRT1	TAIRT2						
	103.27	102.80	130.09	99.585						
ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW						
	83.058	1.0977	52.402	1476.4						
CELL TEMP. = 77.387		HEATER TEMP = 107.35		COOLER TEMP = 109.92						

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NASA-LEWIS PRELIMINARY DATA 04/08/76 CADDEIT REC 04/08/76 11:30:53.025 FAC SEX15 PGM C003 RDG 3014  
 LEANOUT 25 BTDC TO CL APP 100 DEG HUM=0% MCDE = 3.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.330 RATED HP. = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP 102.83	PRESS 29.333	CFM 217.99	DRY FLOW 937.62	VAPOR FLOW 0.30918	PRESS TOTAL 14.891
COMB. FUEL	TEMP 66.292	PRESS 5.3744	DENSITY 45.010	TURBO FLOW 82.663	FLOW TRON 80.306	FPIP 6.0486
COOLING AIR	TEMP 102.75	UDEL-HOOD 3.1833	DEL-HOOD 3.8444	FLOW 10292.	REL-HUM 0.76291	DEW-POINT -11.070
REL-HUM	1 0.76291	2 9.1789	HUMIDITY 2.3083	% H2O VAPOR 0.053005	CORRECTED HP 155.36	
ENG. COND.	F/A DRY 0.085648	F/A WET 0.085620	EQU. RATIO 1.2783	RPM-1 2686.9	RPM-2 2689.6	TORQUE 282.91 BHP 144.74

 WET CORRECTION FACTOR = 0.85381 EXHAUST MOLE. WT. = 27.240 EXHAUST DENSITY = 0.070532 EXHAUST FLOW RATE = 14436.  

MEASURED CONC.	PART PER MILLION WET HC PPM 1691.1	NOX PPM 172.54	CO DRY 9.2303	PER CENT CO2 DRY 10.003	O2 DRY 0.06146
CORRECTED CONC. TO WET BASIS			7.8809	8.5406	0.052207

EMISSION RATE	HC 0.87644	NOX 0.29641	CO 82.599
EMISSION MASS/MODE	0.0043822	0.0014821	0.41300
EMISSION MASS/RATED HP	2.7389E-05	9.2628E-06	0.0025812
MODE EMIS./STD. CYCLE %	1.4415	0.51752	6.1458

 CAL. FUEL AIR RATIO = 0.087471 MEAS. FUEL AIR RATIO = 0.085648 DIFF MEAS. & CAL. F/A PERCENT = 2.1281  

CYL TEMP DEG.F	CYL-1 416.23	CYL-2 440.44	CYL-3 416.78	CYL-4 427.15
EXT GAS TEMP DEG.F	EXT-1 911.85	EXT-2 -454.00	EXT-3 400.46	EXT-4 791.92
ENGINE OIL	EOILT 188.50	SOILT 185.90	OILP 73.027	
DYNO COND.	TORQUE 278.73	RPM 2598.9		
INDUCTION AIR	IAIRT1 103.00	IAIRT2 102.83	TAIRT1 124.38	TAIRT2 100.75
ORIFICE AIR	TEMP 81.201	DELTAP 2.9451	ORFP 53.853	FLOW 2373.5

 CELL TEMP. = 76.386 HEATER TEMP = 166.59 COOLER TEMP = 124.42  
 MANIFOLD PRESSURE = 28.292  
 CYL. BACK PRESSURE = 29.489

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NASA-LEWIS PRELIMINARY DATA 04/08/76 CADDEII REC 04/08/76 11:40:16.195 FAC SEX15 PGM C003 RDG 3016  
 LEANOUT 25 BTDC TO CL APP 100 DEG HUM=0% MODE = 5.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.330 RATED HP. = 160.00 HC RATIO = 2.1250  
 COMB. AIR TEMP 103.35 PRESS 29.329 CFM 112.50 DRY FLOW 472.71 VAPOR FLOW 0.15405 PRESS TOTAL 14.528  
 COMB. FUEL TEMP 70.779 PRESS 5.5325 DENSITY 44.891 TURBO FLOW 46.301 FLOW TRON 42.430 FPIP 6.0162  
 COOLING AIR TEMP 103.42 UNEL-HOOD 3.0504 DEL-HOOD 3.8641 FLOW 10051. REL-HUM 0.72442 DEW-POINT -11.665  
 REL-HUM 1 0.72442 2 35.450 HUMIDITY 2.2811 % H2O VAPOR 0.052382 CORRECTED HP 70.278  
 ENG. COND. F/A DRY 0.089759 F/A WET 0.089730 EQU. RATIO 1.3397 RPM-1 2356.0 RPM-2 2357.2 TORQUE 148.54 BHP 66.634  
 WET CORRECTION FACTOR = 0.86561 EXHAUST MOLE WT. = 26.934 EXHAUST DENSITY = 0.069740 EXHAUST FLOW RATE = 7388.8  
 MEASURED CONC. PART PER MILLION WET HC PPM 2075.2 NOX PPM 168.34 CO DRY 9.8314 PER CENT CO2 DRY 9.6689 O2 DRY 0.16112  
 CORRECTED CONC. TO WET BASIS CO DRY 8.4842 PER CENT CO2 DRY 8.3695 O2 DRY 0.13946  
 EMISSION RATE HC 0.55047 NOX 0.14801 CO 45.512  
 EMISSION MASS/MODE 0.055047 NOX 0.014801 CO 4.5512  
 EMISSION MASS/RATED HP 0.00034404 NOX 9.2509E-05 CO 0.028445  
 MODE EMIS./STD. CYCLE % 18.107 NOX 6.1672 CO 67.725  
 CAL. FUEL AIR RATIO = 0.088780 MEAS. FUEL AIR RATIO = 0.089759 DIFF MEAS. & CAL. F/A PERCENT = -1.0908  
 CYL TEMP DEG.F CYL-1 354.64 CYL-2 371.68 CYL-3 373.39 CYL-4 373.15  
 EXT GAS TEMP DEG.F EXT-1 1310.1 EXT-2 454.00 EXT-3 459.03 EXT-4 781.61 SEXT-1 1118.4 SEXT-2 1118.2  
 ENGINE OIL EOILT 188.21 SOILT 230.14 OILT 69.827 MANIFOLD PRESSURE = 18.999  
 OYAO COND. TORQUE 135.99 RPM 2305.4 CYL. BACK PRESSURE = 29.446  
 INDUCTION AIR TAIRT1 103.83 TAIRT2 103.35 TAIRT1 57.404 TAIRT2 100.04  
 ORIFICE AIR TEMP 82.293 DELTAP 2.0449 ORFP 52.246 FLOW 1996.3  
 CELL TEMP. = 78.351 HEATER TEMP = 115.67 COOLER TEMP = 121.09

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NASA-LEWIS PRELIMINARY DATA 04/08/76 CADDELL REC 04/08/76 12:29:56.906 FAC SEX15 PGM C003 RDG 3017

LEANOUT 25 BTDC TO CL APP 100 DEG. HUM=0% MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.330 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	99.438	29.327	216.85	938.14	0.35257	14.884

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	66.677	5.3903	45.000	79.458	76.751	6.0414

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT
	100.30	3.2998	3.9928	10499.	0.96208	-8.9150

KEL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	0.96208	0.26003	2.6307	0.060410 155.63

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.081811	0.081781	1.2211	2700.7	2703.1	282.87	145.46

WET CORRECTION FACTOR = 0.85239 EXHAUST MOLE. WT. = 27.537 EXHAUST DENSITY = 0.071299 EXHAUST FLOW RATE = 14239.

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1485.3	283.44	7.9237	10.038	0.047705
CORRECTED CONC. TO WET BASIS			6.7542	8.5565	0.040663

	HC	NOX	CO
EMISSION RATE	0.75929	0.48027	69.022
EMISSION MASS/MODE	0.0037964	0.0024014	0.34911
EMISSION MASS/RATED HP	2.3728E-05	1.5009E-05	0.0021819
MODE EMIS./STD. CYCLE %	1.2488	1.0006	5.1951

CAL. FUEL AIR RATIO = 0.085122 MEAS. FUEL AIR RATIO = 0.081811 DIFF MEAS. & CAL. F/A PERCENT = 4.0472

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	435.99	457.19	435.46	443.85

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1746.0	-454.00	561.59	1075.0	1326.8	1322.8

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.407
	184.86	147.93	72.803	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.493
	283.84	2641.5	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	99.498	99.438	86.585	97.237

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	79.261	2.0140	52.448	1987.6

CELL TEMP. = 76.050 HEATER TEMP. = 128.83 COOLER TEMP. = 122.38

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NASA-LEWIS PRELIMINARY DATA 04/08/76 CADDEII REC 04/08/76 12:41:54.024 FAC SEX15 PGM C003 RDG 3019

LEANOUT 25 BIDC TO CL APP 100 DEG. HUMIDITY MCDE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.330 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS. TOTAL
	100.79	29.346	110.56	466.67	0.16405	14.523

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO. FLOW	FLOW TRON	FPIP
	71.394	5.5589	44.875	40.599	39.607	6.1233

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	100.99	3.2306	3.9955	10377.	0.84304	-10.430

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	0.84304	12.495	2.4607	0.056506	67.985

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.084872	0.084842	1.2667	2349.5	2351.8	144.47	64.630

WET CORRECTION FACTOR = 0.85804 EXHAUST MOLE. WT. = 27.299 EXHAUST DENSITY = 0.070685 EXHAUST FLOW RATE = 7164.8

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	1957.5	0.19772
NOX PPM	231.90	0.019772
CO DRY	8.7518	0.00031468
CORRECTED CONC. TO WET BASIS	7.5095	0.00012358

EMISSION RATE	HC	NOX	CO
	0.50350	0.19772	39.061
EMISSION MASS/MODE	0.050350	0.019772	3.9061
EMISSION MASS/RATED HP	0.00031468	0.00012358	0.024413
MODE EMISS./STD. CYCLE %	16.562	8.2384	58.127

CAL. FUEL AIR RATIO = 0.087353 MEAS. FUEL AIR RATIO = 0.084872 DIFF MEAS. & CAL. F/A PERCENT = 2.9235

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	350.09	365.62	364.19	360.82

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1618.4	1454.00	1480.38	985.48	1112.7	1112.2

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	187.91	201.77	70.375	18.850

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	150.05	2305.1	29.393

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	101.20	100.79	137.59	97.286

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	81.527	3.9597	52.693	2743.7

CELL TEMP. = 78.766 HEATER TEMP = 106.69 COOLER TEMP = 111.27

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NASA-Lewis PRELIMINARY DATA 04/08/76 CADDEII REC 04/08/76 12:47:06.530 FAC SEX15 PGM C003 RDG 3020

LEANOUT 25 BTDC TO CL APP 100 DEG. HUM=0% MCDE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.340 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	100.96	29.311	216.93	938.67	0.36104	14.892

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	69.011	5.3855	44.238	78.924	76.961	6.0654

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	101.32	3.3712	4.0371	10623.	0.94116	-8.5199

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	0.94116	7.1627	2.6924	0.061826 157.54

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.081989	0.081957	1.2237	2693.5	2695.5	286.50	146.93

WET CORRECTION FACTOR = 0.85476 EXHAUST MOLE. WT. = 27.523 EXHAUST DENSITY = 0.071263 EXHAUST FLOW RATE = 14256.

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	1476.3	347.91	7.8974	9.9341	0.11007	
CORRECTED CONC. TO WET BASIS			6.7504	8.4912	0.094084	

	HC	NOX	CO
EMISSION RATE	0.75563	0.59026	69.870
EMISSION MASS/MODE	0.0037781	0.0029513	0.34935
EMISSION MASS/RATED HP	2.3613E-05	1.8446E-05	0.0021834
MODE EMIS./STD. CYCLE %	1.2428	1.2297	5.1987

CAL. FUEL AIR RATIO = 0.084976 MFAS. FUEL AIR RATIO = 0.081989 DIFF MEAS. & CAL. F/A PERCENT = 3.6437

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	407.59	432.00	421.64	426.16

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1501.8	-454.00	778.92	1144.8	1301.1	1297.8

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE =
	188.05	199.03	73.199	28.413

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE =
	287.78	2615.7	29.502

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	101.06	100.96	63.474	97.420

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	81.342	2.9468	52.690	2373.9

CELL TEMP. = 77.750 HEATER TEMP = 101.31 COOLER TEMP = 109.63

NASA-LEWIS PRELIMINARY DATA 04/08/76 CADDEII REC 04/08/76 13:04:17.564 FAC SEX15 PGM C003 RDG 3023

LEANDUT 25 BTDC TO CL APP 100 DEG. HUM=0% MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.340 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	99.938	29.332	111.31	471.10	0.15135	14.530

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	71.081	5.5493	44.883	42.689	40.675	6.0432

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	100.07	2.8813	3.5303	9735.3	0.79087	-11.895

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	0.79097	4.0924	2.2488	0.051641	69.106

ENG. COND.	F/A DRY	F/A WET	FQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.086340	0.086312	1.2887	2359.9	2361.7	146.38	65.774

WET CORRECTION FACTOR = 0.86367 EXHAUST MILE. WT. = 27.188 EXHAUST DENSITY = 0.070396 EXHAUST FLOW RATE = 7272.1

MEASURED CONC.	HC PPM	NOX PPM	CO DRY	PER CENT	CO2 DRY
	1961.1	235.20	8.6501	9.5926	0.10487
CORRECTED CONC. TO WET BASIS			7.4794	8.2848	0.090573

	HC	NOX	CO
EMISSION RATE	0.51198	0.20354	39.488
EMISSION MASS/MODE	0.051198	0.020354	3.9488
EMISSION MASS/RATED HP	0.00031999	0.0012721	0.024680
MODE EMIS./STD. CYCLE %	16.841	8.4808	58.762

CAL. FUEL AIR RATIO = 0.087126 MEAS. FUEL AIR RATIO = 0.086340 DIFF MEAS. & CAL. F/A PERCENT = 0.91077

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	366.38	381.19	382.25	385.44

FXT GAS TEMP DEG.F	FXT-1	FXT-2	FXT-3	FXT-4	SEXT-1	SEXT-2
	841.29	-454.00	591.30	964.41	1147.9	1147.5

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	188.17	265.00	70.187	19.049

DYND COND.	TORQUE	RPM	CYL BACK PRESSURE
	151.30	2338.5	29.405

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	100.27	99.938	92.936	96.077

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	81.712	2.0718	52.785	2009.7

CELL TEMP. = 79.737 HEATER TEMP = 109.53 COOLER TEMP = 105.89

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NASA-LEWIS PRELIMINARY DATA 04/08/76 CADDELI REC 04/08/76 13:23:06.566 FAC SEX15 PGM C003 RDG 3024

LEANOUT 25 BTDC TO CL APP 100DEG. HUM=0% MCDE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.350 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	99.533	29.368	215.22	934.27	0.11643	14.898

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	67.420	5.4032	44.980	75.222	73.387	6.0168

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	100.08	3.0953	3.6886	10133.	0.31853	-23.741

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	0.31853	0.25603	0.87237	0.020033 155.21

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.078550	0.078540	1.1724	2689.2	2692.0	283.89	145.37

WET CORRECTION FACTOR = 0.85132 EXHAUST MOLE. WT. = 27.797 EXHAUST DENSITY = 0.071974 EXHAUST FLOW RATE = 14002.

MEASURED CONC.	PART PER MILLION WET		CO. DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	1274.5	457.97	6.7689	10.560	0.082588
CORRECTED CONC. TO WET BASIS			5.7625	8.9897	0.070309

EMISSION RATE	HC	NOX	CO
	0.64067	0.76308	58.579
EMISSION MASS/MODE	0.0032033	0.0038154	0.29289
EMISSION MASS/RATED HP	2.0021E-05	2.3846E-05	0.0018306
MODE EMISS./STD. CYCLE %	1.0537	1.5897	4.3585

CAL. FUEL AIR RATIO = 0.082134 MEAS. FUEL AIR RATIO = 0.078550 DIFF. MEAS. & CAL. F/A PERCENT = 4.5626

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	443.19	464.02	446.99	457.79

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1211.4	-207.94	1002.4	1187.5	1336.3	1333.0

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.530
	188.57	208.36	72.135	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.428
	292.90	2634.9	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	99.576	99.533	111.04	96.074

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	81.351	4.0332	53.747	2769.4

CELL TEMP. = 77.838 HEATER TEMP = 102.73 COOLER TEMP = 104.31

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NASA-LEWIS PRELIMINARY DATA 04/08/76 CADDELI REC 04/08/76 13:26:30.851 FAC SEX15 PGM C003 RDG 3026

LEANOUT 25 BIDC TO CL APP 100DEG. HUM=0% MCDE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.350 RATED HP. = 160.00 HC RATIO = 2.1250

CCMB. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	99.809	29.343	109.54	463.99	0.065872	14.534

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	71.269	5.5571	44.878	40.591	38.500	6.0708

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	100.08	2.9453	3.7166	9856.0	0.35107	-22.791

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	0.35107	13.893	0.99379	0.022821	67.966

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.082976	0.082964	1.2384	2352.4	2353.8	144.47	64.709

WET CORRECTION FACTOR = 0.86063 EXHAUST MOLE. WT. = 27.446 EXHAUST DENSITY = 0.071063 EXHAUST FLOW RATE = 7071.9

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	NOX PPM	CO DRY
1823.1	362.02	7.6565
CORRECTED CONC. TO WET BASIS		CO DRY
		8.6979
		O2 DRY
		0.13141
		0.11310

EMISSION RATE	HC	NOX	CO
EMISSION MASS/MODE	0.46284	0.30466	33.831
EMISSION MASS/RATED HP	0.046284	0.030466	3.3831
MODE EMIS./STD. CYCLE %	0.00028928	0.00019041	0.021145
	15.225	12.694	50.344

CAL. FUEL AIR RATIO = 0.084405 MEAS. FUEL AIR RATIO = 0.082976 DIFF. MEAS. & CAL. F/A PERCENT = 1.7227

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	359.74	375.78	373.93	375.52

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1873.2	-454.00	648.14	913.52	1134.3	1134.1

ENGINE CIL	EOILT	SOILT	OILT	MANIFOLD PRESSURE = 18.825
	187.72	243.69	69.959	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.424
	134.62	2288.3	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	100.24	99.809	81.397	95.938

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	81.941	0.10641	52.687	366.98

CELL TEMP. = 79.605 HEATER TEMP. = 103.85 COOLER TEMP. = 103.81

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NASA-LEWIS PRELIMINARY DATA 04/08/76 CADDEII REC 04/08/76 13:31:28.050 FAC SEX15 PGM C003 RDG 3027

LEANOUT 25 BIDC TO CL APP 100DEG. HUM=0% MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG: BAROMETRIC PRESSURE = 29.350 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	98.618	29.361	216.66	938.35	0.18441	14.888

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIF
	56.292	5.3990	45.010	76.214	73.891	5.9931

COOLING AIR	TEMP	INDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	98.618	3.1124	3.8389	10164.	0.51598	-18.851

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	0.51598	49.955	1.3757	0.031591	156.34

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.078746	0.078730	1.1753	2695.5	2697.8	285.44	146.49

WET CORRECTION FACTOR = 0.85336 EXHAUST MOLE. WT. = 27.781 EXHAUST DENSITY = 0.071933 EXHAUST FLOW RATE = 14074.

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	1280.2	507.29	6.6597	10.592	0.092089
CORRECTED CONC. TO WET BASIS			5.6831	9.0391	0.078585

	HC	NOX	CO
EMISSION RATE	0.64687	0.84965	58.071
EMISSION MASS/MODE	0.0032344	0.0042483	0.29036
EMISSION MASS/RATED HP	2.0215E-05	2.6552E-05	0.0018147
MODE EMIS./STD. CYCLE %	1.0639	1.7701	4.3208

CAL. FUEL AIR RATIO = 0.081865 MEAS. FUEL AIR RATIO = 0.078746 DIFF MEAS. & CAL. F/A PERCENT = 3.9615

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	418.24	438.94	430.09	432.75

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1426.6	-399.45	859.05	1091.1	1322.0	1319.3

ENGINE OIL	EQILT	SOILT	OILP	MANIFOLD PRESSURE
	188.20	172.56	72.755	28.411

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	291.60	2621.8	29.490

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	98.756	98.618	70.567	96.906

ORIFICE AIR	TEMP	DFLTAP	ORFP	FLOW
	79.640	2.9973	53.164	2397.0

CELL TEMP. = 76.041 HEATER TEMP = 114.85 COOLER TEMP = 106.60

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NASA-LEWIS PRELIMINARY DATA 04/08/76 CARDELL REC 04/08/76 13:43:30.490 FAC SEX15 PGM C003 RDG 3031

LEANOUT 25 BTDC TO CL APP 100DEG. HUM=0% MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.350 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	98.989	29.363	109.11	462.16	0.10535	14.534

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	70.484	5.5629	44.899	39.792	38.350	6.0570

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	100.67	3.0803	3.7213	10106.	0.57774	-17.156

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	0.57774	54.571	1.5957	0.036643	67.752

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.082980	0.082961	1.2385	2351.9	2353.7	144.16	64.557

WET CORRECTION FACTOR = 0.85972 EXHAUST MOLE. WT. = 27.445 EXHAUST DENSITY = 0.071062 EXHAUST FLOW RATE = 7044.6

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	1826.2	CO2 DRY
NOX PPM	348.57	O2 DRY
CO DRY	7.7731	0.15134
CORRECTED CONC. TO WET BASIS	6.6827	8.6449
		0.13011

EMISSION RATE	HC	NOX	CO
EMISSION MASS/MODE	0.46185	0.29221	34.178
EMISSION MASS/RATED HP	0.046185	0.029221	3.4178
MODE EMIS./STD. CYCLE %	0.00028865	0.00018263	0.021361
	15.192	12.176	50.860

CAL. FUEL AIR RATIO = 0.084608 MEAS. FUEL AIR RATIO = 0.082980 DIFF MEAS. & CAL. F/A PERCENT = 1.9621

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	362.51	376.43	375.61	377.85

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1601.1	-454.00	621.33	821.64	1130.5	1130.3

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	188.08	55.379	70.299	18.779

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	145.99	2297.2	29.393

INDUCTION AIP	IAIRT1	IAIRT2	IAIRT1	TAIRT2
	99.352	98.989	120.94	95.890

ORIFICE AIP	TEMP	DELTAP	ORFP	FLOW
	81.412	2.0216	53.088	1987.2

CELL TEMP. = 78.766 HEATER TEMP = 110.47 COOLER TEMP = 112.41

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NASA-LEWIS PRELIMINARY DATA 04/08/76 CADDEII REC 04/08/76 13:47:34.323 FAC SEX15 PGM C003 RDG 3032

LEANOUT 25 BIDC TO CL APP 100 DEG. HUM=0% MCDE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAPOMETRIC PRESSURE = 29.350 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	101.33	29.364	215.79	934.03	0.25733	14.895

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	68.556	5.4278	44.950	72.181	69.982	6.0195

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	101.51	3.0474	3.6895	10045.	0.66680	-13.950

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	0.66680	1.8162	1.9286	0.044286 156.33

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.074925	0.074904	1.1183	2691.4	2693.7	285.05	146.08

WET CORRECTION FACTOR = 0.85109 EXHAUST MOLE. WT. = 28.096 EXHAUST DENSITY = 0.072746 EXHAUST FLOW RATE = 13805.

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	1122.5	789.48	5.2334	11.335	0.091789	
CORRECTED CONC. TO WET BASIS			4.4541	9.6468	0.078121	

	HC	NOX	CO
EMISSION RATE	0.55632	1.2970	44.641
EMISSION MASS/MODE	0.0027816	0.0064848	0.22321
EMISSION MASS/RATED HP	1.7385E-05	4.0530E-05	0.0013950
MODE EMISS./STD. CYCLE	0.91500	2.7020	3.3215

CAL. FUEL AIR RATIO = 0.078435 MEAS. FUEL AIR RATIO = 0.074925 DIFF MEAS. & CAL. F/A PERCENT = 4.6853

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	436.34	455.31	447.43	454.36

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	955.62	-351.27	946.74	1274.9	1355.6	1353.5

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE
	188.30	205.63	72.975	28.260

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	292.09	2627.7	29.492

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	101.46	101.33	74.362	97.431

CRIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	81.985	2.9931	53.082	2390.3

CELL TEMP. = 78.952 HEATER TEMP = 150.75 COOLER TEMP = 122.86

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NASA-LEWIS PRELIMINARY DATA 04/08/76 CADDEII REC 04/08/76 13:57:04.485 FAC SEX15 PGM C003 RDG 3034

LEANOUT 25 BTDC TO CL APP 100 DEG. HUM=0% MCDE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.350 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	98.022	29.347	109.19	462.51	0.12246	14.534

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	69.163	5.5821	44.934	37.100	36.058	6.0888

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	98.920	2.9500	3.7387	9864.9	0.69095	-14.946

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	0.69095	32.797	1.8535	0.042562	67.980

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.077960	0.077939	1.1636	2352.3	2354.1	144.77	64.842

WET CORRECTION FACTOR = 0.85585 EXHAUST MOLE. WT. = 27.845 EXHAUST DENSITY = 0.072098 EXHAUST FLOW RATE = 6916.9

MEASURED CONC.	PART PER MILLION WET			PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1559.6	610.18	6.0582	10.902	0.14079
CORRECTED CONC. TO WET BASIS			5.1849	9.3305	0.12050

	HC	NOX	CO
EMISSION RATE	0.38726	0.50225	26.037
EMISSION MASS/MODE	0.038726	0.050225	2.6037
EMISSION MASS/PATED HP	0.00024204	0.00031390	0.016273
MODE EMISS./STD. CYCLE	12.739	20.927	38.746

CAL. FUEL AIR RATIO = 0.080409 MEAS. FUEL AIR RATIO = 0.077960 DIFF MEAS. & CAL. F/A PERCENT = 3.1409

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	376.43	385.57	388.49	390.95

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1600.8	-454.00	839.71	1028.9	1168.2	1168.1

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE
	187.00	223.98	69.771	18.869

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE
	136.58	2269.6	29.386

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	99.411	99.022	152.05	95.805

CRUISE AIR	TEMP	DELTA P	ORFP	FLOW
	79.914	2.0765	53.047	2015.2

CELL TEMP. = 17.077 HEATER TEMP = 131.81 COOLER TEMP = 114.75

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NASA-LEWIS PRELIMINARY DATA 04/08/76 CADDE11 REC 04/08/76 14:04:20.725 FAC SEX15 PGM C003 RDG 3035

LEANOUT 25 BTDC TO CL APP 100 DEG. HUM=0% MODE = 3.0000 NG. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.350 RATED HP. = 160.00 HC RATIO = 2.1250

CCMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS. TOTAL
	99.550	29.339	215.18	933.72	0.28813	14.890

CCMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRCN	FPIP
	67.796	5.4272	44.970	72.646	70.411	6.0954

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	100.15	3.1650	3.8204	10260.	0.78767	-12.150

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	0.78767	25.293	2.1500	0.049602	154.66

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.075409	0.075386	1.1255	2693.2	2695.2	282.03	144.62

WET CORRECTION FACTOR = 0.85378 EXHAUST MOLE WT. = 28.055 EXHAUST DENSITY = 0.072642 EXHAUST FLOW RATE = 13827.

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	1154.6	768.74	5.2475	11.219	0.10967	
CORRECTED CONC. TO WET BASIS			4.4802	9.5788	0.093635	

	HC	NOX	CO
EMISSION RATE	0.57314	1.2649	44.974
EMISSION MASS/MODE	0.0028657	0.0063244	0.22487
EMISSION MASS/RATED HP	1.7911E-05	3.9528E-05	0.0014054
MODE EMIS./STD. CYCLE %	0.94266	2.5352	3.3463

CALL FUEL AIR RATIO = 0.078513 MEAS. FUEL AIR RATIO = 0.075409 DIFF MEAS. & CAL. F/A PERCENT = 4.1171

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	441.79	458.62	450.62	460.99

EXT GAS TEMP DEG.F	FXT-1	EXT-2	EXT-3	FXT-4	SEXT-1	SEXT-2
	1255.8	-298.25	1025.7	1223.2	1360.4	1358.8

ENGINE OIL	ERTLT	SOILT	OILT	MANIFOLD PRESSURE
	138.18	307.89	72.675	28.385

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	292.35	2588.5	29.483

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	99.645	99.550	156.42	95.845

ORIFICE AIR	TEMP	DELTA P	PRFP	FLOW
	80.926	0.046905	53.095	188.18

CELL TEMP. = 77.952 HEATER TEMP = 109.63 COOLER TEMP = 116.62

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NASA-LEWIS PRELIMINARY DATA

04/08/76

CADDEII

REG 04/08/76 14:12:58.148

FAC SEX15

PGM C003

RDG 3037

LEANOUT 25 BTDC TO CL APP 100 DEG. HUM=0%

MODE = 5.0000

NO. SCANS = 5

ENGINE TIMING = 25.000 DEG.

BAROMETRIC PRESSURE = 29.350

RATED HP = 160.00

HC RATIO = 2.1250

CCMB. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	98.316	29.350	109.11	461.96	0.12921	14.537

CCMR. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	69.788	5.5689	44.917	36.909	36.052	6.0786

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	98.825	3.0286	3.7282	10011.	0.72354	-14.096

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	0.72354	5.6746	1.9579	0.044950	67.472

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.078040	0.078018	1.1548	2350.7	2352.5	143.71	64.323

WET CORRECTION FACTOR = 0.85704 EXHAUST MOLE. WT. = 27.839

EXHAUST DENSITY = 0.072081

EXHAUST FLOW RATE = 6910.9

MEASURED CONC.	PART PER MILLION WET	NOX PPM	CO DRY	PER CENT	CO2 DRY
	HC PPM			CO2 DRY	
	1538.0	546.75	5.9520	11.020	0.15918
CORRECTED CONC. TO WET BASIS			5.1097	9.4448	0.13642

EMISSION RATE	HC	NOX	CO
EMISSION MASS/MODE	0.38157	0.44965	25.637
EMISSION MASS/RATED HP	0.038157	0.044965	2.5637
MODE EMIS./STD. CYCLE %	0.00023848	0.00028103	0.016023
	12.552	18.735	38.150

CAL. FUEL AIR RATIO = 0.080034 MEAS. FUEL AIR RATIO = 0.078040 DIFF MEAS. &amp; CAL. F/A PERCENT = 2.5552

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	368.95	378.78	378.29	382.09

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SFXT-1	SEXT-2
	1892.3	1544.00	917.75	1084.7	1159.0	1158.9

ENGINE OIL	EOILT	SOILT	POILT	MANIFOLD PRESSURE
	188.20	208.97	69.679	18.857

DYNO COND.	TORQUE	PPM	CYL BACK PRESSURE
	140.53	2281.1	29.449

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIPT2
	98.782	98.316	99.557	96.166

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	70.905	1.0604	53.205	1455.7

CELL TEMP. = 77.192 HEATER IFMP = 102.27 COOLER TEMP = 114.39

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NASA-LEWIS PRELIMINARY DATA 04/08/76 CADDEII REC 04/08/76 14:35:25.684 FAC SEX15 PGM C003 RDG 3038

LEANOUT 25 BTDC TO CL APP 100 DEG HUM=0% MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.350 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS. TOTAL
	98.290	29.335	214.84	930.88	0.31289	14.887

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	67.787	5.4605	44.970	67.896	65.647	6.3879

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	98.782	3.0668	3.8223	10081.	0.89107	-10.760

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	0.89107	18.962	2.3529	0.054030	154.14

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.070521	0.070497	1.0525	2683.9	2685.7	282.34	144.28

WET CORRECTION FACTOR = 0.85183 EXHAUST MOLE. WT. = 28.471 EXHAUST DENSITY = 0.073718 EXHAUST FLOW RATE = 13522.

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	958.00	1547.6	3.3365	12.292	0.12787	
CORRECTED CONC. TO WET BASIS			2.8421	10.471	0.10893	

	HC	NOX	CO
EMISSION RATE	0.46506	2.4902	27.902
EMISSION MASS/MODE	0.0023253	0.012451	0.13951
EMISSION MASS/RATED HP	1.4533E-05	7.7820E-05	0.00087193
MODE FMIS./STD. CYCLE %	0.76490	5.1880	2.0760

CAL. FUEL AIR RATIO = 0.074019 MEAS. FUEL AIR RATIO = 0.070521 DIFF MEAS. & CAL. F/A PERCENT = 4.9607

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	441.37	460.64	453.65	461.96

EXT GAS TEMP DEG.F	FXT-1	FXT-2	FXT-3	FXT-4	SEXT-1	SEXT-2
	928.60	292.32	1195.7	1246.5	1377.5	1376.0

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE
	188.23	195.61	72.543	28.425

DYNO COND.	TORQUE	PRM	CYL. BACK PRESSURE
	280.48	2610.0	29.523

INDUCTION AIR	TAIPT1	TAIPT2	TAIRT1	TAIPT2
	93.428	98.290	117.31	96.512

ORIFICE AIR	TEMP	DELTAP	ORFD	FLOW
	79.943	1.1014	53.222	1484.4

CELL TEMP. = 75.917 HEATER TEMP = 99.226 COOLER TEMP = 105.34

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NASA-LEWIS PRELIMINARY DATA 04/08/76 CADDEII REC 04/08/76 14:47:06.819 FAC SEX15 PGM C003 RDG 3040

LEANOUT 25 BTDC TO CL APP 100 DEG HUM=0% MCDE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG... BARMETRIC PRESSURE = 29.350 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	99.024	29.350	110.65	468.59	0.13683	14.535

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	72.142	5.5886	44.855	36.860	34.656	6.0846

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	99.248	3.0391	3.7420	10030.	0.73925	-13.420

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	0.73925	14.705	2.0441	0.046939	67.867

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.073959	0.073937	1.1039	2359.2	2361.4	143.92	64.650

WET CORRECTION FACTOR = 0.86776 EXHAUST MOLE. WT. = 28.177 EXHAUST DENSITY = 0.072956 EXHAUST FLOW RATE = 6899.8

MEASURED CONC.	HC PPM	NOX PPM	CO DRY	PER CENT	CO2 DRY	O2 DRY
	1169.3	1256.7	3.4590	12.191	0.21671	
CORRECTED CONC. TO WET BASIS			3.0016	10.579	0.22276	

	HC	NOX	CO
EMISSION RATE	0.28964	1.0319	15.035
EMISSION MASS/MODE	0.028964	0.10319	1.5035
EMISSION MASS/RATED HP	0.00018103	0.00064491	0.0093971
MODE EMIS./STD. CYCLE %	9.5277	42.994	22.374

CAL. FUEL AIR RATIO = 0.073972 MEAS. FUEL AIR RATIO = 0.073959 DIFF MEAS. & CAL. F/A PERCENT = 0.017085

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	377.43	382.95	385.11	385.23

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1120.7	1112.74	1128.5	1088.7	1196.5	1196.7

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	188.17	202.39	70.143	19.068

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	149.03	2310.3	29.413

INDUCTION AIR	IAIRT1	IAIRT2	IAIRT1	TAIPT2
	99.412	99.024	108.75	95.933

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	80.584	2.0137	53.532	1985.0

CELL TEMP. = 79.013 HEATER TEMP = 103.92 COOLER TEMP = 104.45

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NASA-LEWIS PRELIMINARY DATA 04/08/76 CADDEIL REC 04/08/76 14:54:24.397 FAC SEX15 PGM C003 RDG 3041

LEANOUT 25 BTDC TO CL APP 100 DEG HUM=0% MCDE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.350 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	101.19	29.322	215.46	932.80	0.32275	14.881

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	71.153	5.4578	44.081	67.589	66.181	6.0783

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	101.48	3.1459	3.7686	10225.	0.84019	-10.290

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	0.84019	25.365	2.4220	0.055618 155.20

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.070948	0.070924	1.0589	2697.2	2700.2	281.89	144.77

WET CORRECTION FACTOR = 0.85472 EXHAUST MOLE. WT. = 28.434 EXHAUST DENSITY = 0.073622 EXHAUST FLOW RATE = 13573.

MEASURED CONC.	PART PER MILLION WET			PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	936.49	1630.1	3.2395	12.353	0.11593
CORRECTED CONC. TO WET BASIS			2.7689	10.558	0.099089

	HC	NOX	CO
EMISSION RATE	0.45634	2.6329	27.285
EMISSION MASS/MODE	0.0022817	0.013165	0.13642
EMISSION MASS/RATED HP	1.4260E-05	8.2278E-05	0.00085265
MODE EMISS./STD. CYCLE %	0.75055	5.4852	2.0301

CAL. FUEL AIR RATIO = 0.073821 MEAS. FUEL AIR RATIO = 0.070948 DIFF MEAS. & CAL. F/A PERCENT = 4.0625

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	450.55	459.50	456.13	461.56

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1423.2	166.46	1329.8	1306.3	1397.0	1395.0

ENGINE CIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	138.24	245.33	72.923	28.389

DYNO COND.	TORQUE	RPM	CYL BACK PRESSURE
	283.45	2617.0	29.520

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	101.31	101.19	104.24	96.726

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	81.500	2.9985	53.125	2393.4

CELL TEMP. = 78.298 HEATER TEMP. = 105.80 COOLER TEMP. = 105.86

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NASA-LEWIS PRELIMINARY DATA 04/08/76 CADDEII REC 04/08/76 15:03:31.445 FAC SEX15 PGM C003 RDG 3043

LEANOUT 25 BTDC TO CL APP 100 DEG HUM=0% MCDE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.340 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	98.264	29.340	109.86	464.96	0.14501	14.529

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	71.233	5.5917	44.879	35.807	34.044	6.1209

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	99.886	3.0524	3.7135	10055.	0.80758	-12.375

REL-HUM	1	2	HUMIDITY	7 H2O VAPOR	CORRECTED HP
	0.80758	31.333	2.1831	0.050132	67.976

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	PPM-2	TORQUE	BHP
	0.073219	0.073197	1.0928	2350.7	2352.8	144.81	64.812

WET CORRECTION FACTOR = 0.86293 EXHAUST MOLE. WT. = 28.239 EXHAUST DENSITY = 0.073118 EXHAUST FLOW RATE = 6826.6

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	1145.2	1260.1	3.6221	12.055	0.24552	
CORRECTED CONC. TO WET BASIS			3.1256	10.403	0.21187	

	HC	NOX	CO
EMISSION RATE	0.28066	1.0237	15.491
EMISSION MASS/MODE	0.028066	0.10237	1.5491
EMISSION MASS/RATED HP	0.00017542	0.00063980	0.0096819
MODE EMIS./STD. CYCLE %	9.2324	42.653	23.052

CAL. FUEL AIR RATIO = 0.074383 MEAS. FUEL AIR RATIO = 0.073219 DIFF MEAS. & CAL. F/A PERCENT = 1.5888

CYL TEMP DEG. E	CYL-1	CYL-2	CYL-3	CYL-4
	378.43	384.83	388.24	389.86

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SFXT-1	SEXT-2
	942.49	-258.95	1202.9	1128.9	1205.6	1205.7

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	188.17	195.82	70.063	= 19.029

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	144.36	2303.0	= 29.418

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	98.679	98.264	113.05	96.074

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	80.064	1.0387	52.794	1440.7

CELL TEMP. = 78.395 HEATER TEMP. = 103.87 COOLER TEMP. = 107.27

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NASA-LEWIS PRELIMINARY DATA 04/08/76 CADDEII RFC 04/08/75 18:04:36.670 FAC SEX15 PGM C003 RDG 3053

LEANOUT 25 BTDC I & T 100 DEG HUM = 80 % 1 1/2 T CLO MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BARMETRIC PRESSURE = 29.370 RATED HP. = 160.00 HC RATIO = 2.1250

CONV. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	99.886	29.372	11.466	45.472	1.6035	14.426

CONV. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	72.782	5.8347	44.838	3.9799	3.5254	6.1850

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	99.074	-0.012454	0.72095	0.00000	81.734	93.280

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	81.734	36.654	246.84	5.6683	0.55891

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	PPM-2	TORQUE	BHP
	0.077528	0.074888	1.1571	612.30	612.42	4.3671	0.50914

WET CORRECTION FACTOR = 0.82392 EXHAUST MOLE. WT. = 27.880 EXHAUST DENSITY = 0.072189 EXHAUST FLOW RATE = 700.95

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	15321.	16.768	4.7634	10.472	2.0828
CORRECTED CONC. TO WET BASIS			3.9246	8.6284	1.7161

	HC	NOX	CO
EMISSION RATE	0.38555	0.0013986	1.9972
EMISSION MASS/MODE	0.0064258	2.3311E-05	0.033286
EMISSION MASS/RATED HP	4.0161E-05	1.4569E-07	0.00020804
MODE EMIS./STD. CYCLE	2.1138	0.0097127	0.49533

CAL. FUEL AIR RATIO = 0.079276 MEAS. FUEL AIR RATIO = 0.077528 DIFF MEAS. & CAL. F/A PERCENT = 2.2536

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	306.15	320.16	306.85	315.53

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	922.71	-454.00	-454.00	597.15	625.91	624.28

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE
	155.48	295.85	46.289	11.577

DYND COND.	TORQUE	PPM	CYL. BACK PRESSURE
	2.9019	606.90	29.711

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	100.12	99.886	124.22	97.868

ORIFICE AIR	TEMP	DELTAP	PPFP	FLOW
	82.266	1.5070	53.482	1725.5

CELL TEMP. = 73.591 HEATER TEMP = 116.16 COOLER TEMP = 80.693

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OF POOR QUALITY

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NASA-Lewis 1 PRELIMINARY DATA

04/08/76

CADD11

REC 04/08/76 18:06:31.103

FAC SEX15

PGM C003

RDG 3054

LEANOUT 25 BTDC 1 &amp; T 100 DEG HUM = 80 % 1 1/2 T CLO MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.370 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	100.47	29.366	23.626	93.582	3.3702	14.431

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	74.693	5.7315	44.787	3.9772	8.6199	6.1548

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	99.343	0.0063654	0.76634	2257.1	81.948	93.935

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	81.948	25.235	252.09	5.7889	1.5628

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.092110	0.088909	1.3748	1203.9	1204.7	6.2006	1.4213

WET CORRECTION FACTOR = 0.82659 EXHAUST MOLE. WT. = 26.755 EXHAUST DENSITY = 0.069301 EXHAUST FLOW RATE = 1523.4

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM	CO DRY
	8821.9	9.2596
	NOX PPM	CO2 DRY
	18.895	9.3089
		O2 DRY
		0.40622
CORRECTED CONC. TO WET BASIS		
		7.6539
		7.6947
		0.33578

EMISSION RATE	HC	NOX	CO
	0.48246	0.0034253	8.4650
EMISSION MASS/MODE	0.088451	0.00062797	1.5519
EMISSION MASS/PATED HP	0.00055282	3.9248E-06	0.0096995
MODE EMIS./STD. CYCLE 9	29.096	0.26165	23.094

CAL. FUEL AIR RATIO = 0.091357 MEAS. FUEL AIR RATIO = 0.092110 DIFF MEAS. &amp; CAL. F/A PERCENT = -0.91806

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	292.80	307.65	293.72	297.10

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1025.9	-454.00	-454.00	561.67	581.13	576.49

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 9.2802
	155.27	-13.915	57.282	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.346
	3.8020	1209.2	

INDUCTION AIR	IAIRT1	IAIFT2	TAIRT1	TAIRT2
	100.58	100.47	140.32	98.111

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	82.565	1.4827	53.433	1711.4

CELL TEMP. = 75.030 HEATER TEMP = 134.88 COOLER TEMP = 94.643

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NASA-Lewis PRELIMINARY DATA 04/08/76 CADDEII REC 04/08/76 18:06:52.186 FAC SEX15 PGM C003 RDG 3055

LEANOUT 25 BTDC I & T 100 DEG HUM = 80 % 1 1/2 T CLD MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BARMETRIC PRESSURE = 29.370 RATE HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	100.61	29.363	23.698	93.837	3.3850	14.430

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	75.030	5.7348	44.778	3.9764	8.5298	6.1602

COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	99.481	-0.016605	0.71514	0.00000	81.734	93.985

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	81.734	51.257	252.51	5.7985	1.8342

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.090900	0.087735	1.3567	1205.3	1205.5	7.2674	1.6679

WET CORRECTION FACTOR = 0.92300 EXHAUST MOLE. WT. = 26.852 EXHAUST DENSITY = 0.069525 EXHAUST FLOW RATE = 1521.1

MEASURED CONC.	PART PER MILLION WET	NOX PPM	CO DRY	PER CFMT	CO2 DRY	O2 DRY
	8732.9	18.827	9.2521	9.3208	0.46019	0.38367
CORRECTED CONC. TO WET BASIS			7.6145	7.6710		

EMISSION RATE	HC	NOX	CO
	0.47687	0.0034078	8.4086
EMISSION MASS/MODE	0.023843	0.00017039	0.42043
EMISSION MASS/RATED HP	0.00014902	1.0649E-06	0.0026277
MODE EMIS./STD. CYCLE %	7.8432	0.070995	6.2564

CAL. FUEL AIR RATIO = 0.091045 MEAS. FUEL AIR RATIO = 0.090900 DIFF MEAS. & CAL. F/A PERCENT = 0.15934

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	293.44	308.13	293.68	296.64

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1995.3	-454.00	-454.00	134.87	575.49	570.93

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 9.2614
	155.08	44.298	57.286	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.474
	3.2547	1199.1	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	100.71	100.61	185.86	98.230

TRIFIC AIR	TEMP	DELTA P	ORFP	FLOW
	82.680	1.5015	53.486	1721.7

CFLI TEMP. = 75.145 HEATER TEMP = 137.14 COOLER TEMP = 96.786

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NASA-LEWIS PRELIMINARY DATA 04/08/76 CADDEII REC 04/08/76 18:10:05.626 FAC SEX15 PGM C003 RDG 3056

LEANOUT 25 BTDC I & T 100 DEG HUM = 80 % 1 1/2 T CLD MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.370 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	100.79	29.370	11.751	46.514	1.7217	14.428

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	76.652	5.8344	44.736	3.9709	3.6274	6.1695

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	99.999	0.00083027	0.68055	2229.2	83.282	94.770

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	83.282	43.816	259.10	5.9498	0.41518

ENG. COND.	F/A DRY	F/A WET	EQ. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.077994	0.075201	1.1639	604.38	605.88	3.2753	0.37691

WET CORRECTION FACTOR = 0.82067 EXHAUST MOLE. WT. = 27.843 EXHAUST DENSITY = 0.072093 EXHAUST FLOW RATE = 719.40

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	17030.	15.926	4.8776	10.425	2.2569
CORRECTED CONC. TO WET BASIS			4.0029	8.5552	1.8522

EMISSION RATE	HC	NOX	CO
	0.43984	0.0013634	2.0906
	0.0073307	2.2723E-05	0.034844
	4.5817E-05	1.4202E-07	0.00021778
EMISSION MASS/MODE			
EMISSION MASS/RATED HP			
MODE EMISS./STD. CYCLE %	2.4114	0.0094678	0.51851

CAL. FUEL AIR RATIO = 0.079893 MEAS. FUEL AIR RATIO = 0.077984 DIFF MEAS. & CAL. F/A PERCENT = 2.4483

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	289.73	304.25	289.90	297.96

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SFXT-1	SEXT-2
	1768.1	-454.00	-454.00	441.85	559.76	556.15

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 11.711
	153.47	357.63	46.529	

DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.413
	3.4059	586.50	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	100.96	100.79	185.15	97.544

ORIFICE ATR	TEMP	DELTAP	ORFP	FLOW
	83.181	1.5272	53.466	1735.1

CELL TEMP. = 76.448 HEATER TEMP = 116.18 COOLER TEMP = 73.688

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NASA-LEWIS		PRELIMINARY DATA		04/08/76		CADDEII		REC 04/08/76 18:32:26.248		FAC SEX15		PGM C003		RDG 3057	
LEANOUT 25 BTDC I & T 100 DEG HUM = 80 % 3/4 T CLOSE MODE = 1.0000										NO. SCANS = 5					
ENGINE TIMING = 25.00C			DEG.		BAROMETRIC PRESSURE = 29.370				RATED HP = 160.00			HC RATIO = 2.1250			
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		101.93		29.368		12.680		50.199		1.8153		14.430			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		75.003		5.8065		44.779		3.9730		4.3774		6.1608			
COOLING AIR		TEMP		UDEL-HOOD		DFL-HOOD		FLOW		REL-HUM		DEW-POINT			
		100.61		-0.0060887		0.68608		0.00000		78.755		94.060			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		78.755		27.163		253.13		5.8127		0.76345					
FAC. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.087202		0.084159		1.3015		617.04		616.80		5.9006		0.69324	
WET CORRECTION FACTOR = 0.84248				EXHAUST MLE. WT. = 27.123				EXHAUST DENSITY = 0.070228				EXHAUST FLOW RATE = 802.97			
MEASURED CONC.		PART PER MILLION WET				PER CENT									
		HC PPM		NOX PPM		CO DRY		CO2 DRY		C2 DRY					
		19569.		11.104		6.6373		9.3011		2.4392					
CORRECTED CONC. TO WET BASIS						5.5918		7.8360		2.0550					
EMISSION RATE		HC		NOX		CO									
		0.56413		0.0010610		3.2598									
EMISSION MASS/MODE		0.0094022		1.7684E-05		0.054330									
EMISSION MASS/RATED HP		5.8764E-05		1.1052E-07		0.00033956									
MODE EMIS./STD. CYCLE %		3.0928		0.0073683		0.80848									
CAL. FUEL AIR RATIO = 0.084713				MEAS. FUEL AIR RATIO = 0.087202				DIFF MEAS. & CAL. F/A PERCENT = -2.8548							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		258.14		270.94		244.36		252.76							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		1064.5		-454.00		-454.00		158.46		511.43		508.18			
ENGINE OIL		OILT		SOILT		OILP		MANIFOLD PRESSURE = 11.757							
		149.00		232.19		47.337									
DYNO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 28.962									
		6.1710		604.56											
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
		102.13		101.93		136.47		98.268							
CRUISE AIR		TEMP		DELTAP		DPFP		FLOW							
		83.945		1.3018		53.407		1604.2							
CELL TEMP. = 73.849				HEATER TEMP = 141.74				COOLER TEMP = 65.666							

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NASA-LEWIS PRELIMINARY DATA 04/08/76 CADDEII REC 04/08/76 18:34:37.731 FAC SEX15 PGM C003 RDG 3058

LEANOUT 25 BTDC I & T 100 DEG HUM = 80 % 3/4 T CLOSE MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.370 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	102.07	29.366	26.563	105.22	3.8161	14.430

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	74.826	5.6985	44.784	11.694	10.399	6.1584

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	100.64	-0.0041514	0.73490	0.00000	78.630	94.150

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	78.630	11.209	253.88	5.8299	1.1183

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.098832	0.095373	1.4751	1198.2	1200.4	4.4504	1.0153

WET CORRECTION FACTOR = 0.83152 EXHAUST MOLE. WT. = 26.303 EXHAUST DENSITY = 0.068104 EXHAUST FLOW RATE = 1753.7

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	154.73	11.032	10.564	8.3309	0.77058	
CORRECTED CONC. TO WET BASIS			8.7840	6.9273	0.64075	

	HC	NOX	CO
EMISSION RATE	0.98678	0.0023023	11.184
EMISSION MASS/MODE	0.18091	0.00042209	2.0503
EMISSION MASS/RATED HP	0.0011307	2.6381E-06	0.012815
MODE EMIS./STD. CYCLE %	59.509	0.17587	30.511

CAL. FUEL AIR RATIO = 0.097901 MEAS. FUEL AIR RATIO = 0.098832 DIFF MEAS. & CAL. F/A PERCENT = -0.94179

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	283.14	294.15	271.86	271.92

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1472.2	-454.00	-454.00	200.53	538.93	536.88

ENGINE OIL	FILIT	SOILT	OILP	MANIFOLD PRESSURE = 10.047
	148.60	350.12	57.550	

CYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.229
	6.2718	1195.6	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	102.13	102.07	106.73	97.863

ORIFICE ATP	TEMP	DELTAP	ORFP	FLOW
	84.375	1.3384	53.488	1625.4

CELL TEMP. = 74.480 HEATED TEMP = 122.99 COOLER TEMP = 66.873

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NASA-LEWIS PRELIMINARY DATA 04/08/76 CADDEII RFC 04/08/76 18:34:58.454 FAC SEX15 PGM C003 RDG 3059

LEANOUT 25 BTDC I & T 100 DEG HUM = 80 7/8 T CLOSE MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.370 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	102.13	29.370	26.750	105.96	3.8318	14.430

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	74.755	5.6919	44.786	11.856	10.501	6.1476

COOLING AIR	TEMP	UNEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	100.71	-0.0088562	0.73645	0.00000	78.291	94.060

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	78.291	0.27603	253.14	5.8130	1.6793

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.099104	0.095645	1.4792	1196.6	1198.4	6.6923	1.5248

WET CORRECTION FACTOR = 0.93442 EXHAUST MOLE. WT. = 26.285 EXHAUST DENSITY = 0.068057 EXHAUST FLOW RATE = 1767.5

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	NOX PPM	CO DRY
15078.	10.370	8.2520
CORRECTED CONC. TO WET BASIS		6.8856
		0.69539

EMISSION RATE	HC	NOX	CO
EMISSION MASS/MODE	0.95679	0.0021812	11.367
EMISSION MASS/RATED HP	0.047840	0.00010906	0.56834
MODE EMIS./STD. CYCLE %	0.00029900	6.8162E-07	0.0035521
	15.737	0.045441	8.4574

CAL. FUEL AIR RATIO = 0.097538 MEAS. FUEL AIR RATIO = 0.099104 DIFF MEAS. & CAL. F/A PERCENT = -1.5806

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	285.14	295.43	273.11	274.56

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1144.3	-454.00	-454.00	-203.47	533.73	531.72

ENGINE OIL	FILT	SOILT	OILP	MANIFOLD PRESSURE = 10.070
	148.43	2.8081	57.562	

DYNO COND.	TORQUE	RPM	CYL. RACK PRESSURE = 29.698
	3.8452	1184.0	

INDUCTION AIR	TAIPT1	TAIPT2	TAIRT1	TAIPT2
	102.19	102.13	94.020	97.930

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	84.419	1.3412	53.500	1627.1

CELL TEMP. = 74.471 HEATER TEMP = 123.50 COOLER TEMP = 68.374

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NASA-LEWIS		PRELIMINARY DATA		04/08/76	CADDEIT	REC 04/08/76 18:38:13.266		FAC SEX15	PGM C003	RDG 3060
LEANDIT 25 BTDC I & T 100 DEG HUM = RO $\pm$ 3/4 T CLOSE MODE = 7.0000										
NO. SCANS = 5										
ENGINE TIMING = 25.000			DEG.		BAROMETRIC PRESSURE = 29.380			RATED HP = 160.00		HC RATIO = 2.1250
CCMR. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL				
	102.53	29.378	12.742	50.490	1.8096	14.436				
CCMR. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP				
	74.826	5.8065	44.784	3.9717	4.2604	6.1698				
COOLING AIR	TEMP	INEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT				
	101.34	-0.013008	0.74226	0.00000	76.735	93.800				
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP					
	76.735	13.477	250.89	5.7613	0.38917					
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP			
	0.084381	0.081461	1.2594	597.00	596.34	3.1086	0.35336			
WET CORRECTION FACTOR = 0.92740			EXHAUST MOLE. WT. = 27.337		EXHAUST DENSITY = 0.070782			EXHAUST FLOW RATE = 799.08		
MEASURED CONC.	PART PER MILLION WET			PER CENT						
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY					
	23954.	9.9560	6.7339	8.9818	2.8994					
CORRECTED CONC. TO WET BASIS				5.5716	7.4315	2.3989				
EMISSION RATE	HC	NOX	CO							
	0.68717	0.00094671	3.2323							
EMISSION MASS/MODE	0.011453	1.5779E-05	0.053871							
EMISSION MASS/RATED HP	7.1581E-05	9.8616E-08	0.00033669							
MODE EMISS./STD. CYCLE %	3.7674	0.0065744	0.80165							
CAL. FUEL AIR RATIO = 0.086211		MEAS. FUEL AIR RATIO = 0.084381			DIFF MEAS. & CAL. F/A PERCENT = 2.1685					
CYL TEMP-DEG.F	CYL-1	CYL-2	CYL-3	CYL-4						
	279.81	291.08	267.01	278.39						
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2				
	959.35	-454.00	-454.00	315.69	520.78	517.80				
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 12.029						
	148.47	292.28	46.849							
DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.311							
	2.8083	592.80								
INDUCTION AIR	IAIPT1	IAIRT2	TAIRT1	TAIRT2						
	102.74	102.53	93.141	98.254						
CRIFICE AIR	TEMP	DELTAP	ORFP	FLOW						
	85.016	1.3379	53.456	1624.2						
CELL TEMP. = 74.826		HEATER TEMP = 104.23			COOLER TEMP = 72.370					

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NASA-LEWIS		PRELIMINARY DATA		04/08/76	CADDEII	REC 04/08/76 18:42:44.753		FAC SEX15	PGM C003	RDG 3061
LEAFOUT 25 RTDC 1 & T 100 DEG HUM = 80 % NEUTRAL				MODE = 1.0000		NO. SCANS = 5				
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.380			RATED HP. = 160.00		HC RATIO = 2.1250		
COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL				
	99.930	29.383	14.917	59.181	2.1074	14.437				
CCMR. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP				
	72.711	5.7669	44.840	3.9801	5.7396	6.1695				
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT				
	98.748	-0.017159	0.71127	0.00000	82.452	93.605				
REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP						
	82.452	27.569	249.27	5.7240 0.56402						
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP			
	0.096983	0.093649	1.4475	593.76	593.52	4.5421	0.51350			
WET CORRECTION FACTOR = 0.85534		EXHAUST MOLE. WT. = 26.427		EXHAUST DENSITY = 0.068425		EXHAUST FLOW RATE = 979.59				
MEASURED CONC.	PART PER MILLION WET		PER CENT							
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY					
	37483.	4.8895	8.6882	6.8479	4.2444					
CORRECTED CONC. TO WET BASIS			7.4313	5.8573	3.6304					
EMISSION RATE	HC	NOX	CO							
	1.3182	0.00056997	5.2850							
EMISSION MASS/MODE	0.021970	9.4995E-06	0.088083							
EMISSION MASS/PATED HP	0.00013731	5.9372E-08	0.00055052							
MODE EMIS./STD. CYCLE %	7.2269	0.0039581	1.3108							
CAL. FUEL AIR RATIO = 0.094977		MEAS. FUEL AIR RATIO = 0.096983		DIFF MEAS.&CAL. F/A PERCENT = -2.0688						
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4						
	280.00	292.80	273.07	282.49						
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2				
	1625.1	-454.00	-454.00	159.34	507.92	505.59				
ENGINE OIL	EOILT	SOILT	DILP	MANIFOLD PRESSURE = 13.463						
	146.53	392.91	46.869							
DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.588							
	5.7678	581.58								
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2						
	100.11	99.930	80.655	97.810						
CRIFICE AIR	TEMP	DELTA P	DRFP	FLOW						
	82.618	1.3276	53.518	1621.6						
CFLT TFMP. = 72.649		HEATER TEMP = 103.43		COOLER TEMP = 63.080						

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NASA-Lewis		PRELIMINARY DATA		04/08/76	CANDELL	REC 04/08/76 18:45:52.638		FAC SEX15	PGM C003	RDG 3062
IFANOUT 25 BTDC I & T 100 DEG HUM = 80 % NEUTRAL				MODE = 2.0000		NO. SCANS = 5				
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.380			RATED HP. = 160.00		HC RATIO = 2.1250	
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL				
	100.91	29.380	28.878	114.69	3.9041	14.434				
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP				
	72.311	5.6784	44.850	13.193	11.608	6.1461				
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT				
	99.421	0.0016605	0.65647	2233.4	76.689	92.220				
RFL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP					
	76.689	9.3609	238.27	5.4715	1.4608					
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP			
	0.10121	0.097878	1.5106	1216.6	1218.1	5.7506	1.3321			
WET CORRECTION FACTOR = 0.83492		EXHAUST MOLE. WT. = 26.147			EXHAUST DENSITY = 0.067701		EXHAUST FLOW RATE = 1923.3			
MEASURED CONC.	PART PER MILLION WET			PER CENT						
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY					
	18482.	8.4448	11.145	7.8463	0.94059					
CORRECTED CONC. TO WET BASIS				9.3052	6.5510	0.78515				
EMISSION RATE	HC	NOX	CO							
	1.2761	0.0019328	12.993							
EMISSION MASS/MODE	0.23396	0.00035434	2.3820							
EMISSION MASS/RATED HP	0.0014623	2.2146E-06	0.014888							
MODE EMIS./STD. CYCLE %	76.961	0.14764	35.447							
CAL. FUEL AIR RATIO = 0.10091		MEAS. FUEL AIR RATIO = 0.10121			DIFF MEAS. & CAL. F/A PERCENT = -0.29788					
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4						
	291.67	305.25	284.71	293.70						
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2				
	1563.3	-454.00	-454.00	314.33	536.22	535.52				
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 10.410						
	147.33	176.88	56.466							
NYAN COND.	TORQUE	RPM	CYL. RACK PRESSURE = 29.414							
	4.0900	1215.6								
INDUCTION AIR	IAIPT1	IAIPT2	TAIPT1	TAIPT2						
	101.02	100.91	115.07	98.424						
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW						
	83.067	1.3638	53.498	1642.4						
CELL TEMP. = 72.960		HEATER TEMP = 123.28		COOLER TEMP = 77.629						

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NASA-LEWIS PRELIMINARY DATA 04/08/76 CADDEII REC 04/08/76 18:46:17.577 FAC SEX15 PGM C003 RDG 3063

LEANOUT 25 BTDC I & T 100 DEG HUM = 80 % NEUTRAL MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BARMETRIC PRESSURE = 29.380 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	101.08	29.379	28.946	114.98	3.9092	14.437

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	72.435	5.6757	44.847	13.156	11.644	6.1464

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	99.593	0.0058119	0.70712	2254.3	76.243	92.190

REL-HUM	1	2	HUMIDITY	H2O VAPOR	CORRECTED HP
	76.243	12.945	237.99	5.4651	1.9135

ENC. COND.	F/A DRY	F/A WET	EQV. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10127	0.097940	1.5115	1217.6	1217.7	7.5257	1.7448

WET CORRECTION FACTOR = 0.83664 EXHAUST MOLE. WT. = 26.143 EXHAUST DENSITY = 0.067691 EXHAUST FLOW RATE = 1928.4

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	NOX PPM	CO DRY
17639.	8.2796	11.183
		6.5803

CORRECTED CONC. TO WET BASIS	HC	NOX	CO
	1.2212	0.0019000	13.099
	0.061060	9.5002 F-05	0.65493
	0.00038162	5.9376 F-07	0.0040933
	20.085	0.039584	9.7460

CAL. FUEL AIR RATIO = 0.10035 MEAS. FUEL AIR RATIO = 0.10127 DIFF MEAS. & CAL. F/A PERCENT = -0.90452

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	292.03	305.40	284.65	294.71

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1833.7	-454.00	-454.00	-104.71	533.47	532.68

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	147.13	35.259	56.434	10.445

DYNO COND.	TORQUE	RPM	CYL. PACK PRESSURE
	2.8299	1225.7	29.440

INDUCTION AIR	TAIPT1	TAIPT2	TAIRT1	TAIRT2
	101.14	101.08	160.90	98.470

EFFICE AIR	TEMP	DELTA P	ORFP	FLOW
	83.111	1.3195	53.444	1616.0

CELL TEMP. = 72.827 HEATER TEMP = 116.54 COOLER TEMP = 76.295

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NASA-LEWIS PRELIMINARY DATA 04/08/76 CADDELL REC 04/08/76 18:52:44.108 FAC SEX15 PGM C003 RDG 3064

LEAN CUT 25 BTDC I & T 100 DEG HUM = 80 % NEUTRAL MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.380 RATED HP. = 160.00 HC RATIO = 2.1250

COND. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	101.76	29.377	15.310	59.550	2.0485	14.430

COND. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	72.871	5.7699	44.935	3.9780	5.7756	6.1653

COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	100.43	-0.0024908	0.66837	0.00000	75.481	92.530

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	75.481	12.477	240.79	5.5294	0.53531

ENG. COND.	F/A DRY	F/A WET	EQ. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.096987	0.093762	1.4476	603.54	609.48	4.2421	0.48748

WET CORRECTION FACTOR = 0.84743 EXHAUST MOLE. WT. = 26.426 EXHAUST DENSITY = 0.068424 EXHAUST FLOW RATE = 984.65

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	CO DRY	CO2 DRY
37255.	9.0292	6.8907
	7.6516	5.8394

CORRECTED CONC. TO WET BASIS	HC	NOX	CO
EMISSION RATE	1.3170	0.00051667	5.4698
EMISSION MASS/MODE	0.021949	8.6112E-06	0.091164
EMISSION MASS/RATED HP	0.00013718	5.3820E-08	0.00056977
MODE EMIS./STD. CYCLE %	7.2201	0.0035880	1.3566

CAL. FUEL AIR RATIO = 0.097202 MEAS. FUEL AIR RATIO = 0.096987 DIFF MEAS. & CAL. F/A PERCENT = 0.22198

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	290.06	307.39	283.17	296.07

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1100.2	-454.00	-454.00	293.95	576.49	574.92

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	151.16	223.96	46.557	13.274

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	8.2448	595.26	29.395

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	101.94	101.76	132.09	98.552

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	84.314	1.3796	53.348	1649.8

CELL TEMP. = 73.938 HEATER TEMP = 175.23 COOLER TEMP = 81.660

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NASA-LEWIS	PRELIMINARY DATA	04/08/76	CADDEII	REC 04/08/76 19:01:57.218	FAC SEX15	PGM C003	RDG 3066
LEANOUT 25 BTDC I & T 100 DEG HUM = 80 % 3/4 T OPEN MODE = 1.0000 NO. SCANS = 5							
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.380		RATED HP. = 160.00		HC RATIO = 2.1250
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	100.30	29.381	17.958	71.099	2.5939	14.432	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	74.311	5.7390	44.797	3.9763	7.1157	6.1458	
COOLING AIR	TEMP	UDEL-HOOD	DFL-HOOD	FLOW	REL-HUM	DEW-POINT	
	99.378	-0.00027676	0.71680	0.00000	83.396	94.335	
RFL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP			
	83.396	22.018	255.38	5.8643		0.45414	
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10010	0.096573	1.4940	609.24	611.28	3.5587	0.41281
WET CORRECTION FACTOR = 0.85383		EXHAUST MOLE WT. = 26.219		EXHAUST DENSITY = 0.067888		EXHAUST FLOW RATE = 1190.3	
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	CO2 DRY		
	42246.	3.8574	9.2907	6.2363	4.4258		
CORRECTED CONC. TO WET BASIS			7.9327	5.3247	3.7789		
	HC	NOX	CO				
EMISSION RATE	1.8053	0.00054639	6.8553				
EMISSION MASS/MODE	0.030088	9.1066E-06	0.11426				
EMISSION MASS/RATED HP	0.00018805	5.5916E-08	0.00071409				
MODE EMISS./STD. CYCLE %	9.8975	0.0037944	1.7002				
CAL. FUEL AIR RATIO = 0.099486		MEAS. FUEL AIR RATIO = 0.10010		DIFF MEAS. & CAL. F/A PERCENT = -0.60911			
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	262.01	283.94	258.51	274.86			
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	950.92	-454.00	-454.00	441.13	503.88	501.10	
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 14.388			
	146.53	413.26	47.317				
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 28.990				
	7.0567	602.28					
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2			
	100.41	100.30	109.97	98.036			
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW			
	82.688	1.3584	53.433	1639.8			
CELL TEMP. = 76.997		HEATER TEMP = 131.53		COOLER TEMP = 58.077			

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NASA-LEWIS    PRELIMINARY DATA    04/08/76    CADDEII    REC 04/08/76 19:04:35.056    FAC SEX15    PGM C003    RDG 3067

LEANOUT 25 BTDC I & T 100 DEG HUM = 80 % 3/4 T OPEN    MODE = 2.0000    NO. SCANS = 5

ENGINE TIMING = 25.000    DEG.    BAROMETRIC PRESSURE = 29.380    RATED HP. = 160.00    HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	100.36	29.383	29.926	118.51	4.3516	14.438

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	74.391	5.6751	44.795	14.161	12.556	6.1536

COOLING AIR	TEMP	WDFL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	99.110	0.0071957	0.76413	2261.3	83.786	94.545

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	83.786	61.244	257.02	5.9022	1.6162

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10595	0.10220	1.5813	1206.6	1210.1	6.3923	1.4686

WET CORRECTION FACTOR = 0.84349    EXHAUST WOLF. WT. = 25.849    EXHAUST DENSITY = 0.066929    EXHAUST FLOW RATE = 2023.4

MEASURED CONC.	HC PPM	NOX PPM	CO DRY	PER CENT CO2 DRY	O2 DRY
	21018.	6.2816	11.400	7.4825	1.0976
CORRECTED CONC. TO WET BASIS			9.6155	6.3114	0.92582

	HC	NOX	CO
EMISSION RATE	1.5267	0.0015125	14.125
EMISSION MASS/MODE	0.27990	0.00027729	2.5895
EMISSION MASS/RATED HP	0.0017494	1.7331E-06	0.016185
MODE EMISS./STD. CYCLE %	92.072	0.11554	38.535

CAL. FUEL AIR RATIO = 0.10299    MEAS. FUEL AIR RATIO = 0.10595    DIFF MEAS. & CAL. F/A PERCENT = -2.7924

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	294.98	317.36	296.41	307.15

FXT GAS TEMP DEG.F	FXT-1	EXT-2	EXT-3	FXT-4	SEXT-1	SEXT-2
	1005.7	-439.14	-454.00	451.17	597.29	597.50

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 10.840
	146.77	372.18	55.253	

DYAP COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.396
	2.1602	1201.0	

INDUCTION AIR	TAIPT1	TAIPT2	TAIPT1	TAIPT2
	100.41	100.36	126.28	97.901

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	82.952	1.56	53.387	1643.6

CIL TEMP. = 76.563    HEATER TEMP = 147.01    COOLER TEMP = 68.418

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NASA-LEWIS PPELIMINARY DATA 04/08/76 CADDEII REC 04/08/76 19:04:56.192 FAC SEX15 PGM C003 RUG 3U08

LEANOUT 25 BTDC I & T 100 DEG HUM = 80 % 3/4 T OPEN MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.380 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	100.48	29.373	29.885	118.34	4.3385	14.439

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	74.480	5.6739	44.793	13.891	12.310	6.1503

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEL-POINT
	99.239	0.016329	0.74974	2307.2	83.365	94.500

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	83.365	65.248	256.63	5.8930	1.1549

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10402	0.10034	1.5526	1208.9	1210.4	4.5588	1.0493

WET CORRECTION FACTOR = 0.83933 EXHAUST MOLE WT. = 25.968 EXHAUST DENSITY = 0.067237 EXHAUST FLOW RATE = 2003.7

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	20562	6.2876	11.382	7.4965	1.1785
CORRECTED CONC. TO WET BASIS			9.5531	6.2920	0.98916

	HC	NOX	CO
EMISSION RATE	1.4820	0.0015022	13.924
EMISSION MASS/MODE	0.074100	7.5109E-05	0.69622
EMISSION MASS/RATED HP	0.00046313	4.5943E-07	0.0043513
MODE FMIS./STD. CYCLE %	24.375	0.031296	10.360

CAL. FUEL AIR RATIO = 0.10233 MEAS. FUEL AIR RATIO = 0.10402 DIFF MEAS. & CAL. F/A PERCENT = -1.6305

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	294.08	316.26	294.53	306.99

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	592.74	-454.00	-454.00	-91.569	590.06	589.88

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 10.890
	148.84	-9.1099	55.402	

DYNO COND.	TORQUE	PPM	CYL. BACK PRESSURE = 29.407
	1.5049	1202.9	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	100.58	100.48	107.01	98.034

CPIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	83.049	1.3284	53.488	1621.5

CELL TEMP. = 76.085 HEATER TEMP = 155.13 COOLER TEMP = 70.979

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NASA-LEWIS PRELIMINARY DATA 04/08/76 CADDEII REC 04/08/76 19:09:07.728 FAC SEX15 PGM C003 RDG 3069

LEANOUT 25 BTDC I & T 100 DEG HUM = 80 % 3/4 T OPEN MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.380 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	100.65	29.380	16.630	65.963	2.4102	14.438

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	73.671	5.7453	44.814	7.9930	6.8287	6.1731

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	99.395	-0.0060887	0.65702	0.00000	82.668	94.395

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	82.668	17.048	255.77	5.8733	0.56147

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10352	0.099874	1.5451	582.42	583.74	4.6005	0.51017

WET CORRECTION FACTOR = 0.86294 EXHAUST MOLE WT. = 25.999 EXHAUST DENSITY = 0.067319 EXHAUST FLOW RATE = 1117.1

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	NOX PPM	CO DRY
45324.	3.4953	9.1195
		5.9088
		5.0989
		3.8421

CORRECTED CONC. TO WET BASIS	HC	NOX	CO
	1.8177	0.00046465	6.3823
	0.030295	7.7442E-06	0.10637
	0.00018934	4.8401E-08	0.00066483
	9.9654	0.0032268	1.5829

CAL. FUEL AIR RATIO = 0.10159 MEAS. FUEL AIR RATIO = 0.10352 DIFF MEAS. & CAL. F/A PERCENT = -1.8705

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	289.03	310.45	289.46	310.59

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1292.1	-311.71	-454.00	97.867	590.40	588.67

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	150.03	290.72	46.385	14.576

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE
	12.378	584.88	29.597

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	100.76	100.65	56.295	97.164

ORIFICE AIR	TEMP	DELTA P	ORF	FLOW
	83.717	1.3422	53.447	1628.7

CELL TEMP. = 74.204 HEATER TEMP = 144.17 COOLER TEMP = 55.543

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NASA-LEWIS	PRELIMINARY DATA	04/08/76	CADDEII	REC 04/08/76 19:19:18.525	FAC SEX15	PGM C003	RDG 3071
LEANOUT 25 BTDC 1.8 T 100 DEG HUM = 80 % 1 1/2 T OPE MODE = 1.0000 NO. SCANS = 5							
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.380		RATED HP. = 160.00		HC RATIO = 2.1250
COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	102.50	29.370	18.898	74.908	2.6911	14.433	
COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	74.568	5.7240	44.791	3.9740	7.8668	6.1569	
COOLING AIR	TEMP	INLET-HUMID	DEL-HUMID	FLOW	REL-HUM	DEW-POINT	
	101.13	-0.0074724	0.69272	0.00000	76.967	93.865	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	76.967	36.242	251.48	5.7747	0.83575		
ENG. COND.	F/A DRY	F/A WET	FQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10502	0.10138	1.5575	612.30	616.02	6.5090	0.75884
WET CORRECTION FACTOR = 0.86912		EXHAUST MLE. WT. = 25.906		EXHAUST DENSITY = 0.067077		EXHAUST FLOW RATE = 1274.1	
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY			
	46072	3.4983	9.5371	5.7854	4.7871		
CORRECTED CONC. TO WET BASIS			8.2889	5.0283	4.1606		
	HC	NOX	CO				
EMISSION RATE	2.1074	0.00053043	7.6675				
EMISSION MASS/MODE	0.035124	8.8405E-06	0.12779				
EMISSION MASS/RATED HP	0.00021953	5.5253E-08	0.00079870				
MODE EMIS./STD. CYCLE %	11.554	0.0036835	1.9017				
CAL. FUEL AIR RATIO = 0.10126		MEAS. FUEL AIR RATIO = 0.10502		DIFF MEAS. & CAL. F/A PERCENT = -3.5803			
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	278.80	304.10	280.11	298.93			
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SFXT-1	SEXT-2	
	916.98	-454.00	-454.00	329.22	588.06	586.16	
ENGINE OIL	FILTY	SOILT	OILP	MANIFOLD PPESSURE = 14.725			
	150.40	286.23	46.985				
DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.413				
	0.29523	614.82					
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2			
	132.62	132.50	-49.872	97.864			
ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW			
	85.472	1.3695	53.429	1642.1			
CELL TEMP. = 75.429		HEATER TEMP = 179.10		COOLER TEMP = 72.441			

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NASA-LEWIS PRELIMINARY DATA 04/08/76 CADDEII REC 04/08/76 19:26:08.697 FAC SEX15 PGM C003 RDG 3072

LEANOUT 25 BTDC I & T 100 DEG HUM = 80 % 1 1/2 T OPE MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.380 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	100.67	29.376	31.556	125.21	4.4075	14.435

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	72.151	5.6562	44.854	14.825	13.468	6.1491

COOLING AIR	TEMP	UPPER-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	99.214	0.0083027	0.73119	2266.9	79.742	93.245

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	79.742	16.808	246.39	5.6581	0.71949

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10756	0.10390	1.6054	1203.6	1204.9	2.8586	0.65511

WET CORRECTION FACTOR = 0.84473 EXHAUST MOLE WT. = 25.751 EXHAUST DENSITY = 0.066675 EXHAUST FLOW RATE = 2146.1

MEASURED CONC.	PART PER MILLION VET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	25056.	4.8925	11.624	7.1607	1.3299
CORRECTED CONC. TO WET BASIS			9.8196	6.0489	1.1234

EMISSION RATE	HC	NOX	CO
	1.9304	0.0012495	15.299
EMISSION MASS/MODE	0.35392	0.0022907	2.8049
EMISSION MASS/RATED HP	0.0022120	1.4317E-06	0.017531
MODE EMIS./STO. CYCLE %	116.42	0.095444	41.739

CAL. FUEL AIR RATIO = 0.10555 MEAS. FUEL AIR RATIO = 0.10756 DIFF MEAS. & CAL. F/A PERCENT = -1.8750

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	286.02	314.10	290.08	309.45

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1385.2	-454.00	-454.00	421.91	608.27	605.68

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE
	151.61	341.67	57.306	11.282

DYNO CORR.	TORQUE	PPM	CYL. BACK PRESSURE
	3.8668	1199.6	29.356

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	100.71	100.67	80.360	97.980

PIPEICE AIR	TEMP	DELTA P	ORFP	FLOW
	83.234	1.3617	53.495	1640.9

CELL TEMP. = 73.440 HEATER TEMP = 176.31 COOLER TEMP = 74.133

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NASA-LEWIS PRELIMINARY DATA 04/08/76 CANDELL REC 04/08/76 19:26:30.662 FAC SEX15 PGM C003 RDG 3073  
 LEANOUT 25 BTDC I & T 100 DEG HUM = 80 % 1 1/2 T DPE MODE = 6.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.380 RATED HP. = 160.00 HC RATIO = 2.1250  

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	100.89	29.375	31.945	126.76	4.4601	14.440
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIF
	72.248	5.6616	44.852	14.611	13.207	6.1485
COOLING AIR	TEMP	WHEEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	99.369	0.0047049	0.73894	2248.7	79.228	93.245
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP	
	79.223	0.91809	246.30	5.6558	1.3736	
ENG. COND.	F/A DRY	F/A WET	FQI. RATIO	RPM-1	RPM-2	TORQUE
	0.10419	0.10065	1.5551	1201.2	1202.6	5.4672
						BHP
						1.2504

 WET CORRECTION FACTOR = 0.83583 EXHAUST MOLE. WT. = 25.957 EXHAUST DENSITY = 0.067210 EXHAUST FLOW RATE = 2148.9  

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	O2 DRY
	25394	4.7795	11.544	7.1431
CORRECTED CONC. TO WET BASIS			CO DRY	O2 DRY
			9.6492	1.2436

EMISSION RATE	HC	NOX	CO
	1.9591	0.001222	15.054
EMISSION MASS/MODE	0.097954	5.1110E-05	0.75269
EMISSION MASS/RATED HP	0.00061221	3.8194E-07	0.0047043
MODE EMIS./STD. CYCLE %	32.222	0.025463	11.201

 CAL. FUEL AIR RATIO = 0.10505 MEAS. FUEL AIR RATIO = 0.10419 DIFF MEAS. & CAL. F/A PERCENT = 0.82630  

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	286.97	313.25	288.82	308.25
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4
	715.82	-454.00	-454.00	-212.03
				SEXT-1
				603.82
				SEXT-2
				601.35
ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 11.263
	151.43	-124.78	57.314	
PYAN COND.	TORQUE	RPM		CYL. RACK PRESSURE = 29.487
	7.3879	1202.5		
INDUCTION AIR	TAIPT1	TAIPT2	TAIPT1	TAIPT2
	100.93	100.89	84.648	98.191
ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	83.301	1.3066	53.479	1608.0

 CELL TEMP. = 73.485 HEATER TEMP = 176.94 COOLER TEMP = 77.033

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NASA-LEWIS PRELIMINARY DATA 04/08/76 CADDEII REC 04/08/76 19:34:50.224 FAC SEX15 PGM C003 RDG 3075

LEANOUT 25 BTDC I & T 100 DEG HUM = 80 % 1 1/2 T OPE MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.380 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	102.24	29.377	18.617	73.805	2.6332	14.433

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	73.165	5.7300	44.828	3.9756	7.6778	6.1443

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	100.88	-0.021034	0.72372	0.00000	77.060	93.655

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	77.060	43.286	249.75	5.7350	0.57897

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	PPM-1	PPM-2	TORQUE	BHP
	0.10403	0.10044	1.5526	594.06	594.72	4.6505	0.52602

WET CORRECTION FACTOR = 0.87039 EXHAUST MOLE. WT. = 25.968 EXHAUST DENSITY = 0.067237 EXHAUST FLOW RATE = 1251.0

MEASURED CONC.	PART PER MILLION WET	HC PPM	NOX PPM	CO DRY	PER CENT	CO2 DRY	O2 DRY
	46056.	3.3583	9.3386	5.7445	4.9315		
CORRECTED CONC. TO WET BASIS		8.1283	4.9999	4.2923			

EMISSION RATE	HC	NOX	CO
	2.0685	0.00049997	7.3826
EMISSION MASS/MODE	0.034475	8.3328E-06	0.12304
EMISSION MASS/RATED HP	0.00021547	5.2080E-08	0.00076902
MODE EMIS./STD. CYCLE %	11.341	0.0034720	1.8310

CAL. FUEL AIR RATIO = 0.10032 MEAS. FUEL AIR RATIO = 0.10403 DIFF MEAS. & CAL. F/A PERCENT = -3.5670

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	267.48	293.05	266.59	287.13

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1054.6	-454.00	-454.00	402.42	537.23	534.04

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	146.86	284.19	46.957	15.124

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	3.9028	580.44	29.196

INDUCTION AIR	TAIPT1	TAIPT2	TAIRT1	TAIPT2
	102.34	102.24	86.542	98.031

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	84.867	1.3269	53.501	1617.9

CELL TEMP. = 73.983 HEATER TEMP = 126.03 COOLER TEMP = 66.587

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NASA-LEWIS		PRELIMINARY DATA		04/08/76	CADDE11	REC: 04/08/76 19:50:46.439		FAC SEX15	PGM C003	RDG 3075
LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 80.3				MODE = 3.0000		NO. SCANS = 5				
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.380			RATED HP. = 160.00		HC RATIO = 2.1250		
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL				
	100.94	29.383	219.01	902.40	29.188	14.910				
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP				
	63.743	5.3471	45.079	80.309	78.797	5.9790				
COOLING AIR	TEMP	JDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT				
	100.19	2.7548	3.4244	9492.2	75.411	91.705				
REL-HUM	1	2	HUMIDITY	% H2O VAPOR		CORRECTED HP				
	75.411	24.850	226.41	5.1992		144.17				
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP			
	0.087319	0.084583	1.3033	2712.1	2715.1	245.37	126.71			
WET CORRECTION FACTOR = 0.81876		EXHAUST MOLE. WT. = 27.115		EXHAUST DENSITY = 0.070206		EXHAUST FLOW RATE = 14391.				
MEASURED CONC.	PART PER MILLION WET		PER CENT		363					
	HC PPM	NOX PPM	CO DRY	CO2 DRY						
	2028.3	47.983	9.4812	9.5372						
				0.036524						
CORRECTED CONC. TO WET BASIS			7.7628	7.8087	0.029904					
		HC	NOX	CO						
EMISSION RATE		1.0479	0.082176	81.109						
EMISSION MASS/MODE		0.0052397	0.00041088	0.40555						
EMISSION MASS/RATED HP		3.2748E-05	2.5680E-06	0.0025347						
MODE EMIS./STD. CYCLE %		1.7236	0.17120	6.0349						
CAL. FUEL AIR RATIO = 0.089004		MEAS. FUEL AIR RATIO = 0.087319		DIFF MEAS. & CAL. F/A PERCENT = 1.9299						
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4						
	400.76	417.75	387.84	404.42						
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2				
	156.68	1466.7	-454.00	703.71	1313.4	1311.6				
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.224						
	186.01	238.98	73.395							
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.523							
	241.48	2655.1								
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2						
	100.88	100.94	27.467	97.457						
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW						
	84.182	1.7250	53.390	1838.2						
CELL TEMP. = 76.369		HEATER TEMP = 179.21		COOLER TEMP = 97.904						

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NASA-LEWIS		PRELIMINARY DATA		04/08/76	CADDEIT	REC 04/08/76 19:55:20.169		FAC SEX15	PGM C003	RDG 3077	
LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 80 %				MODE = 4.0000		NO. SCANS = 5					
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.380		RATED HP. = 160.00		HC RATIO = 2.1250			
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL					
	101.62	29.364	203.09	829.28	28.696	14.821					
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP					
	65.108	5.3735	45.042	73.785	71.872	6.0117					
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT					
	101.08	2.7214	3.4354	9426.9	78.306	93.575					
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP						
	78.306	27.103	242.22	5.5622	129.06						
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP				
	0.086668	0.083769	1.2936	2447.5	2449.7	247.94	115.54				
WET CORRECTION FACTOR = 0.81061		EXHAUST MOLE. WT. = 27.163		EXHAUST DENSITY = 0.070332		EXHAUST FLOW RATE = 13220.					
MEASURED CONC.	PART PER MILLION WET		PER CENT		364						
	HC PPM	NOX PPM	CO DRY	CO2 DRY							O2 DRY
	2121.5	46.733	9.8477	9.3027							0.056406
CORRECTED CONC. TO WET BASIS			7.9826	7.5408	0.045723						
		HC	NOX	CO							
EMISSION RATE		1.0069	0.073523	76.619							
EMISSION MASS/MODE		0.083910	0.0061269	6.3849							
EMISSION MASS/RATED HP		0.00052444	3.9293E-05	0.039906							
MODE EMIS./STD. CYCLE %		27.602	2.5529	95.014							
CAL. FUEL AIR RATIO = 0.090039		MEAS. FUEL AIR RATIO = 0.086668		DIFF MEAS. & CAL. F/A PERCENT = 3.8894							
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4							
	382.79	403.99	377.25	394.52							
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2					
	156.12	1224.3	-454.00	589.13	254.5	1253.4					
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.425							
	188.14	150.79	71.495								
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.490								
	233.45	2391.5									
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2							
	101.58	101.62	73.894	97.222							
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW							
	84.955	1.7196	53.431	1834.1							
CELL TEMP. = 77.643		HEATER TEMP = 142.46		COOLER TEMP = 63.966							

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NASA-LEWIS		PRELIMINARY DATA		04/08/76	CADDEII	REC 04/08/76 19:59:18.273		FAC SEX15	PGM C003	RDG 3078	
LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 80 %				MODE = 5.0000		NO. SCANS = 5					
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.380		RATED HP = 160.00		HC RATIO = 2.1250			
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL					
	103.19	29.377	125.96	506.21	16.943	14.590					
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP					
	68.377	5.5190	44.355	46.982	45.266	6.0552					
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT					
	103.28	2.6580	3.3391	9302.2	71.266	92.050					
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP						
	71.266	13.531	234.29	5.3800	72.124						
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP				
	0.089421	0.086525	1.3346	2347.8	2350.5	143.22	64.025				
WET CORRECTION FACTOR = 0.82915		EXHAUST MOLE. WT. = 26.959		EXHAUST DENSITY = 0.069804		EXHAUST FLOW RATE = 8143.1					
MEASURED CONC.	PART PER MILLION WET		PER CENT								
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY						
	1982.9	60.720	9.1630	9.6429	0.067487						
CORRECTED CONC. TO WET BASIS			7.5975	7.9953	0.055956						
EMISSION RATE	HC	NOX	CO								
	0.57967	0.358839	44.915								
EMISSION MASS/MODE	0.057967	0.0058839	4.4915								
EMISSION MASS/RATED HP	0.00036230	3.6774E-05	0.028072								
MODE EMIS./STD. CYCLE %	19.068	2.4516	66.838								
CAL. FUEL AIR PATIO = 0.088116		MEAS. FUEL AIR RATIO = 0.089421		DIFF MEAS. & CAL. F/A PERCENT = -1.4587							
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4							
	343.60	355.73	354.65	351.92							
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2					
	154.95	899.76	-454.00	684.49	1149.6	1149.4					
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 20.847							
	187.93	190.68	71.327								
DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.376								
	135.99	2314.8									
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2							
	103.18	103.19	32.302	98.312							
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW							
	85.595	1.5561	53.468	1747.0							
CELL TEMP. = 78.368	HEATER TEMP = 179.19		COOLER TEMP = 103.74								

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NASA-LEWIS		PRELIMINARY DATA		04/08/76		CADDEII		REC 04/08/76 20:02:54.168		FAC SEX15		PGM C003		RDG 3079	
LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 80 %				MCDE = 3.0000		NO. SCANS = 5									
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.380				RATED HP. = 160.00		HC RATIO= 2.1250					
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		99.723		29.360		218.50		900.16		29.214		14.911			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		63.230		5.3405		45.092		80.965		78.674		5.9892			
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		98.937		2.7059		3.3388		9396.5		78.474		91.810			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		78.474		73.015		227.18		5.2169		144.58					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.087403		0.084653		1.3045		2712.9		2714.8		246.03		127.09	
WET CORRECTION FACTOR = 0.82123				EXHAUST MOLE. WT. = 27.108				EXHAUST DENSITY = 0.070190				EXHAUST FLOW RATE = 14361.			
MEASURED CONC.		PART PER MILLION WET				PER CENT									
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		1744.8		46.337		9.3283		9.5685		0.044864					
CORRECTED CONC. TO WET BASIS						7.6507		7.8579		0.036844					
		HC		NOX		CO									
EMISSION RATE		0.89957		0.079191		79.874									
EMISSION MASS/MODE		0.0044979		0.00039595		0.39937									
EMISSION MASS/RATED HP		2.8112E-05		2.4747E-06		0.0024961									
MODE EMIS./STD. CYCLE %		1.4796		0.16498		5.9430									
CAL. FUEL AIR RATIO = 0.088493				MEAS. FUEL AIR RATIO = 0.087400				DIFF MEAS. & CAL. F/A PERCENT = 1.2501							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		393.05		409.24		383.08		395.52							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		155.64		968.55		126.50		1076.7		1296.9		1295.0			
ENGINE OIL		EOILT		SOILT		OILP		MANIFOLD PRESSURE = 28.304							
		188.50		243.93		73.451									
DYNO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.540									
		239.16		2633.9											
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
		99.705		99.723		40.007		97.472							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		82.785		1.7276		53.359		1841.9							
CELL TEMP. = 75.846				HEATER TEMP = 146.17				COOLER TEMP = 88.232							

NASA-LEWIS		PRELIMINARY DATA		04/08/76	CADDEIT	REC 04/08/76 20:05:54.886		FAC SEX15	PGM C003	RDG 3080
LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 80 %				MODE = 4.0000		NO. SCANS = 5				
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.380		RATED HP. = 160.00		HC RATIO = 2.1250		
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL				
	100.42	29.406	202.54	827.23	27.307	14.801				
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP				
	63.806	5.3744	45.077	74.174	71.182	6.0339				
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT				
	99.999	2.6798	3.4279	9345.4	77.514	92.090				
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP					
	77.514	46.617	231.08	5.3063	125.71					
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP			
	0.086049	0.083299	1.2843	2434.4	2436.0	243.82	113.02			
WET CORRECTION FACTOR = 0.81042		EXHAUST MOLE. WT. = 27.210		EXHAUST DENSITY = 0.070453		EXHAUST FLOW RATE = 13139.				
MEASURED CONC.	PART PER MILLION WET		PER CENT							
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY					
	1894.3	42.964	9.8567	9.2855	0.052125					
CORRECTED CONC. TO WET BASIS			7.9880	7.5251	0.042243					
EMISSION RATE	HC	NOX	CO							
	0.89355	0.067179	76.200							
EMISSION MASS/MODE	0.074462	0.0055982	6.3500							
EMISSION MASS/RATED HP	0.00046539	3.4989E-05	0.039687							
MODE EMIS./STD. CYCLE %	24.494	2.3326	94.494							
CAL.FUEL AIR RATIO = 0.089974		MEAS. FUEL AIR RATIO = 0.086049		DIFF MEAS.& CAL. F/A PERCENT = 4.5615						
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4						
	397.05	405.83	377.56	396.84						
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2				
	154.43	765.54	-454.00	822.43	1252.5	1251.4				
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.402						
	188.08	145.79	70.695							
DYNO COND.	TORQUE	RPM	CYL.BACK PRESSURE = 29.596							
	244.28	2346.4								
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2						
	100.39	100.42	33.671	97.672						
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW						
	83.242	1.7111	53.432	1832.7						
CELL TEMP. = 76.227	HEATER TEMP = 126.93		COOLER TEMP = 79.219							

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NASA-LEWIS PRELIMINARY DATA 04/08/76 CADDEII REC 04/08/76 20:09:37.610 FAC SEX15 PGM C003 RDG 3081

LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 80% MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.380 RATED HP = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	101.08	29.377	126.54	509.27	16.982	14.594

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	65.999	5.5151	44.991	44.915	44.896	6.1335

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	101.08	2.6541	3.3867	9294.6	75.644	91.945

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	75.644	27.337	233.42	5.3601	74.119

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.088158	0.085313	1.3158	2351.6	2353.9	147.42	66.010

WET CORRECTION FACTOR = 0.82510 EXHAUST MOLE. WT. = 27.052 EXHAUST DENSITY = 0.070044 EXHAUST FLOW RATE = 8154.1

MEASURED CONC.	PART PER MILLION WET	NOX PPM	CO DRY	PER CENT CO2 DRY	O2 DRY
	1808.1	58.254	9.1176	9.6910	0.065647
CORRECTED CONC. TO WET BASIS			7.5230	7.9960	0.054165

	HC	NOX	CO
EMISSION RATE	0.52929	0.056526	44.535
EMISSION MASS/MODE	0.052929	0.0056526	4.4535
EMISSION MASS/RATED HP	0.00033080	3.5329E-05	0.027834
MODE EMIS./STD. CYCLE %	17.411	2.3553	66.272

CAL. FUEL AIR RATIO = 0.087872 MEAS. FUEL AIR RATIO = 0.088158 DIFF MEAS. & CAL. F/A PERCENT = -0.32399

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	348.48	356.57	354.83	350.78

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	152.99	542.74	-454.00	649.44	1149.3	1149.3

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 20.976
	188.14	209.04	70.739	

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.430
	146.66	2266.5	

INDUCTION AIR	IAIRT1	IAIRT2	IAIRT1	TAIRT2
	101.06	101.08	96.851	97.736

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	83.866	1.5720	53.383	1758.4

CELL TEMP. = 77.458 HEATER TEMP = 111.40 COOLER TEMP = 78.829

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NASA-LEWIS PRELIMINARY DATA 04/08/76 CADDEII REC 04/08/76 20:21:00.477 FAC SEX15 PGM C003 RDG 3082

LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 80 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.390 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	100.01	29.390	218.18	898.31	29.237	14.901

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	64.444	5.3513	45.060	78.124	76.085	5.9730

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	99.550	2.7222	3.4177	9428.5	77.962	91.875

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	77.962	22.358	227.83	5.2317	145.02

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.084698	0.082028	1.2641	2711.9	2714.5	247.09	127.59

WET CORRECTION FACTOR = 0.81927 EXHAUST MOLE. WT. = 27.313 EXHAUST DENSITY = 0.070719 EXHAUST FLOW RATE = 14191.

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	O2 DRY
	1608.2	60.196	8.3891	10.029
CORRECTED CONC. TO WET BASIS			6.8729	0.045485
			8.2164	0.037264

	HC	NOX	CO
EMISSION RATE	0.81933	0.10166	70.813
EMISSION MASS/MODE	0.0040966	0.00050830	0.35406
EMISSION MASS/RATED HP	2.5604E-05	3.1769E-06	0.0022129
MODE EMIS./STD. CYCLE %	1.3476	0.21179	5.2688

CAL.FUEL AIR RATIO = 0.086057 MEAS. FUEL AIR RATIO = 0.084698 DIFF MEAS.& CAL. F/A PERCENT = 1.5053

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	393.92	411.47	390.71	398.26

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SFXT-1	SEXT-2
	254.96	841.42	-454.00	776.61	1305.8	1303.9

ENGINE OIL	EDILT	SOILT	OILP	MANIFOLD PRESSURE = 28.192
	188.47	122.62	73.891	

DYND COND.	TORQUE	RPM	CYL.BACK PRESSURE = 29.535
	250.84	2664.4	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	100.02	100.01	154.73	97.374

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	83.225	1.7200	53.456	1837.2

CELL TEMP. = 76.023 HEATER TEMP = 123.85 COOLER TEMP = 90.318

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NASA-LEWIS		PRELIMINARY DATA		04/08/76		CADDEII		REC 04/08/76 20:31:22.090		FAC SEX15		PGM C003		RDG 3084	
LEANOUT 25 BTDC TO CL APP 100 DEG HUM = -80 %				MODE = 5.0000				NO. SCANS = 5							
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.390				RATED HP. = 160.00				HC RATIO = 2.1250			
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		101.26		29.391		125.65		506.38		16.409		14.590			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		68.145		5.5184		44.961		43.277		43.273		6.1221			
COOLING AIR		TEMP		DEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		101.19		2.6959		3.4025		9377.0		73.219		91.065			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		73.219		0.29603		226.83		5.2088		74.054					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.085455		0.082773		1.2755		2354.0		2356.0		147.38		66.059	
WET CORRECTION FACTOR = 0.82407				EXHAUST MOLE. WT. = 27.255				EXHAUST DENSITY = 0.070569				EXHAUST FLOW RATE = 8021.4			
MEASURED CONC.		PART PER MILLION WET				PER CENT									
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		1834.7		75.281		8.1640		10.230		0.078268					
CORRECTED CONC. TO WET BASIS						6.7277		8.4300		0.064498					
		HC		NOX		CO									
EMISSION RATE		0.52833		0.071859		39.179									
EMISSION MASS/MODE		0.052833		0.0071859		3.9179									
EMISSION MASS/RATED HP		0.00033021		4.4912E-05		0.024487									
MODE EMIS./STD. CYCLE %		17.379		2.9941		58.302									
CAL. FUEL AIR RATIO = 0.085359				MEAS. FUEL AIR RATIO = 0.085455				DIFF MEAS. & CAL. F/A PERCENT = -0.10086							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		342.57		357.96		355.82		351.73							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		1364.5		451.30		-163.11		703.66		1151.7		1151.7			
ENGINE OIL		EOILT		SOILT		OIL <sup>2</sup>		MANIFOLD PRESSURE = 20.874							
		187.91		191.33		70.871									
DYNO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.492									
		148.50		2317.5											
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
		101.26		101.26		105.22		97.653							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		84.130		1.5882		53.423		1766.7							
CELL TEMP. = 77.484				HEATER TEMP = 157.28				COOLER TEMP = 90.009							

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NASA-LEWIS		PRELIMINARY DATA		04/08/76	CADDEII	REC 04/08/76 20:35:38.865		FAC SEX15	PGM C003	RDG 3085	
LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 80 %				MODE = 3.0000		NO. SCANS = 5					
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.390			RATED HP. = 160.00		HC RATIO = 2.1250			
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL					
	101.94	29.383	218.20	899.57	28.274	14.903					
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP					
	66.005	5.3429	45.018	78.299	76.076	5.9580					
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT					
	101.30	2.6671	3.4512	9320.3	71.186	90.815					
REL-HUM	1	2	HUMIDITY	% H2O VAPOR		CORRECTED HP					
	71.186	24.796	220.01	5.0522		144.76					
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP				
	0.084568	0.081992	1.2622	2716.8	2718.8	246.12	127.32				
WET CORRECTION FACTOR = 0.82005			EXHAUST MOLE. WT. = 27.323		EXHAUST DENSITY = 0.070745		EXHAUST FLOW RATE = 14190.				
MEASURED CONC.	PART PER MILLION WET		PER CENT		371						
	HC PPM	NOX PPM	CO DRY	CO2 DRY							O2 DRY
	1670.5	56.270	8.3387	10.114							0.043064
CORRECTED CONC. TO WET BASIS			6.8381	8.2937	0.035315						
EMISSION RATE			HC	NOX	CO						
			0.85101	0.095022	70.450						
EMISSION MASS/MODE			0.0042551	0.00047511	0.35225						
EMISSION MASS/RATED HP			2.6594E-05	2.9694E-06	0.0022016						
MODE EMIS./STD. CYCLE %			1.3997	0.19796	5.2418						
CAL. FUEL AIR RATIO = 0.085887			MEAS. FUEL AIR RATIO = 0.084568		DIFF MEAS. & CAL. F/A PERCENT = 1.5592						
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4							
	403.31	416.71	396.63	407.21							
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2					
	153.73	823.41	329.72	1017.8	1317.4	1316.0					
ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.292							
	188.29	105.62	73.555								
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.519								
	244.31	2649.5									
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2							
	101.87	101.94	136.06	97.650							
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW							
	84.919	1.7217	53.362	1835.3							
CELL TEMP. = 78.360		HEATER TEMP = 118.43		COOLER TEMP = 93.373							

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NASA-LEWIS		PRELIMINARY DATA		04/08/76	CADDEII	REC 04/08/76 20:43:47.741		FAC SEX15	PGM C003	RDG 3087	
LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 80 %				MODE = 4.0000		NO. SCANS = 5					
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.390		RATED HP. = 160.00		HC RATIO = 2.1250			
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL					
	99.412	29.406	202.09	829.21	26.418	14.827					
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP					
	63.725	5.3855	45.079	71.643	69.127	6.0366					
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT					
	98.799	2.6771	3.4387	9339.9	77.393	91.065					
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP						
	77.393	13.931	223.02	5.1212	127.54						
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP				
	0.083365	0.080791	1.2442	2431.1	2433.2	249.53	115.04				
WET CORRECTION FACTOR = 0.80987		EXHAUST MOLE. WT. = 27.415		EXHAUST DENSITY = 0.070985		EXHAUST FLOW RATE = 13027.					
MEASURED CONC.	PART PER MILLION WET		PER CENT		372						
	HC PPM	NOX PPM	CO DRY	CO2 DRY							O2 DRY
	1949.2	58.566	8.8721	9.7703							0.068987
CORRECTED CONC. TO WET BASIS			7.1852	7.9127	0.055870						
		HC	NOX	CO							
EMISSION RATE	0.91161		0.090792	67.957							
EMISSION MASS/MODE	0.075967		0.0075660	5.6631							
EMISSION MASS/RATED HP	0.00047479		4.7288E-05	0.035394							
MODE EMIS./STD. CYCLE %	24.989		3.1525	84.272							
CAL. FUEL AIR RATIO = 0.087407		MEAS. FUEL AIR RATIO = 0.083365		DIFF MEAS. & CAL. F/A PERCENT = 4.8495							
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4							
	385.85	405.38	382.06	403.60							
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2					
	159.41	66.958	-454.00	609.84	1265.9	1265.0					
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.586							
	187.79	254.16	71.003								
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.551								
	258.53	2356.1									
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2							
	99.369	99.412	86.473	97.098							
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW							
	82.476	1.6415	53.373	1797.0							
CELL TEMP. = 77.059		HEATER TEMP = 144.47		COOLER TEMP = 86.834							

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NASA-LEWIS PRELIMINARY DATA 04/08/76 CADDEII REC 04/08/76 20:48:24.001  
 LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 80 % MODE = 4.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.390 RATED HP. = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP 100.25	PRESS 29.437	CFM 202.21	DRY FLOW 829.56	VAPOR FLOW 26.218	PRESS TOTAL 14.822
COMB. FUEL	TEMP 64.354	PRESS 5.3900	DENSITY 45.062	TURBO FLOW 70.007	FLOW TRON 68.962	FPIP 6.0645
COOLING AIR	TEMP 99.731	UDEL-HOOD 2.7144	DEL-HOOD 3.3200	FLOW 9413.3	REL-HUM 74.869	DEW-POINT 90.810
REL-HUM	1 74.869	2 23.520	HUMIDITY 221.23	% H2O VAPOR 5.0802	CORRECTED HP 127.58	
ENG. COND.	F/A DRY 0.083130	F/A WET 0.080584	EQU. RATIO 1.2408	RPM-1 2429.9	RPM-2 2432.3	TORQUE 248.65 BHP 115.04

 WET CORRECTION FACTOR = 0.80920 EXHAUST MOLE. WT. = 27.434 EXHAUST DENSITY = 0.071032 EXHAUST FLOW RATE = 13018.  

MEASURED CONC.	PART PER MILLION WET HC PPM 1935.9	NOX PPM 57.178	CO DRY 8.8564	PER CENT CO2 DRY 9.7898	O2 DRY 0.059966
CORRECTED CONC. TO WET BASIS			7.1666	7.9219	0.048524

EMISSION RATE	HC 0.90477	NOX 0.088580	CO 67.735
EMISSION MASS/MODE	0.075398	0.0073817	5.6446
EMISSION MASS/RATED HP	0.00047124	4.6136E-05	0.035279
MODE EMIS./STD. CYCLE %	24.802	3.0757	83.997

 CAL. FUEL AIR RATIO = 0.087378 MEAS. FUEL AIR RATIO = 0.083130 DIFF MEAS. & CAL. F/A PERCENT = 5.1093  

CYL TEMP DEG.F	CYL-1 385.87	CYL-2 405.53	CYL-3 382.09	CYL-4 402.77
EXT GAS TEMP DEG.F	EXT-1 153.77	EXT-2 -441.81	EXT-3 -454.00	EXT-4 689.86
				SFXT-1 1263.8
				SEXT-2 1263.0

ENGINE OIL	EOILT 187.98	SOILT 296.61	OILP 70.803	MANIFOLD PRESSURE = 28.571
DYNO COND.	TORQUE 258.87	RPM 2346.4		CYL. BACK PRESSURE = 29.559
INDUCTION AIR	IAIRT1 100.21	IAIRT2 100.25	TAIRT1 60.158	TAIRT2 97.220
ORIFICE AIR	TEMP 83.673	DELTAP 1.6902	ORFP 53.389	FLOW 1821.2
CELL TEMP. = 77.803	HEATER TEMP = 138.39	COOLER TEMP = 88.586		

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NASA-LEWIS		PRELIMINARY DATA		04/08/76		CADDEII		REC 04/08/76 20:52:14.464		FAC SEX15		PGM C003		RDG 3089	
LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 80 %								MODE = 5.0000		NO. SCANS = 5					
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 29.390				RATED HP. = 160.00		HC RATIO = 2.1250			
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		100.58		29.391		124.95		504.48		16.355		14.597			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		67.653		5.5079		44.974		45.605		43.684		6.1200			
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		100.42		2.6774		3.2945		9340.5		74.798		91.095			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		74.798		19.116		226.94		5.2113		74.803					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.086593		0.083874		1.2924		2353.4		2354.5		149.06		66.791	
WET CORRECTION FACTOR = 0.82866				EXHAUST MOLE. WT. = 27.159				EXHAUST DENSITY = 0.070347				EXHAUST FLOW RATE = 8024.8			
MEASURED CONC.		PART PER MILLION WET				PER CENT									
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		1843.5		67.667		8.1596		10.153		0.057726					
CORRECTED CONC. TO WET BASIS						6.7615		8.4132		0.047835					
		HC		NOX		CO									
EMISSION RATE		0.53109		0.064618		39.392									
EMISSION MASS/MODE		0.053109		0.0064618		3.9392									
EMISSION MASS/RATED HP		0.00033193		4.0386E-05		0.024620									
MODE EMIS./STD. CYCLE %		17.470		2.5924		58.619									
CAL. FUEL AIR RATIO = 0.085551				MEAS. FUEL AIR RATIO = 0.086593				DIFF MEAS. & CAL. F/A PERCENT = -1.2031							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		347.01		360.20		357.54		359.59							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		436.07		-454.00		-454.00		497.75		1163.1		1162.9			
ENGINE OIL		EOILT		SOILT		OILP		MANIFOLD PRESSURE = 20.807							
		187.90		161.09		71.331									
DYNO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.464									
		140.48		2310.8											
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
		100.59		100.58		84.559		96.893							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		84.305		1.5533		53.414		1747.6							
CELL TEMP. = 78.474				HEATER TEMP = 141.09				COOLER TEMP = 76.207							

NASA-Lewis		PRELIMINARY DATA		04/08/76	CADDIE I	REC 04/08/76 21:02:34.919		FAC SEX15	PGM C003	RDG 3090
LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 80 %				MODE = 3.0000		NO. SCANS = 5				
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.390			RATED HP. = 160.00		HC RATIO = 2.1250		
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL				
	99.196	29.366	217.40	898.35	28.197	14.908				
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP				
	65.637	5.3636	45.028	75.053	72.904	5.9946				
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT				
	98.540	2.6137	3.4838	9214.3	77.221	90.785				
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP					
	77.221	47.995	219.71	5.0453	144.77					
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	8HP			
	0.081153	0.078684	1.2112	2709.9	2711.9	247.33	127.62			
WET CORRECTION FACTOR = 0.81868		EXHAUST MOLE. WT. = 27.589			EXHAUST DENSITY = 0.071434		EXHAUST FLOW RATE = 13991.			
MEASURED CONC.	PART PER MILLION WET			PER CENT		375				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY					
	1611.0	80.438	7.0023	10.774	0.043384					
CORRECTED CONC. TO WET BASIS										
		HC	NOX	CO						
EMISSION RATE		3.80917	0.13393	58.230						
EMISSION MASS/MODE		0.0040458	0.00066963	0.29115						
EMISSION MASS/RATED HP		2.5286E-05	4.1852E-06	0.0018197						
MODE EMIS./STD. CYCLE %		1.3309	0.27901	4.3326						
CAL. FUEL AIR RATIO = 0.082656		MEAS. FUEL AIR RATIO = 0.081153			DIFF MEAS. & CAL. F/A PERCENT = 1.8521					
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4						
	393.07	401.73	390.25	389.75						
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2				
	154.90	693.88	701.66	1094.1	1323.2	1321.3				
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.316						
	188.34	210.14	73.435							
DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.553							
	253.90	2650.3								
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2						
	99.205	99.196	102.44	96.603						
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW						
	83.216	1.7236	53.430	1839.1						
CELL TEMP. = 76.723		HEATER TEMP = 134.36			COOLER TEMP = 81.296					

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NASA-LEWIS		PRELIMINARY DATA		04/08/76		CADDET I		REC 04/08/76 21:33:09.327		FAC SEX15		PGM C003		RDG 3097	
LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 80 %				MODE = 4.0000				NO. SCANS = 5							
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 29.390				RATED HP. = 160.00				HC RATIO = 2.1250	
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		99.611		29.402		201.17		825.89		27.019		14.828			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		65.027		5.3768		45.044		68.436		66.331		6.0056			
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		99.093		2.6486		3.3867		9283.6		78.899		91.875			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		78.899		58.218		229.01		5.2588		131.71					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.080314		0.077770		1.1987		2440.1		2442.8		255.32		118.62	
WET CORRECTION FACTOR = 0.80601				EXHAUST MOLE. WT. = 27.555				EXHAUST DENSITY = 0.071606				EXHAUST FLOW RATE = 12837.			
MEASURED CONC.		PART PER MILLION WET				PER CENT									
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		1826.6		90.669		7.8053		10.296		0.049835					
CORRECTED CONC. TO WET BASIS						6.2911		8.2990		0.040143					
		HC		NOX		CO									
EMISSION RATE		0.84180		0.13851		58.633									
EMISSION MASS/MODE		0.070150		0.011542		4.8861									
EMISSION MASS/RATED HP		0.00043844		7.2141E-05		0.030538									
MODE EMIS./STD. CYCLE %		23.076		4.8094		72.709									
CAL. FUEL AIR RATIO = 0.084784				MEAS. FUEL AIR RATIO = 0.080314				DIFF MEAS. & CAL. F/A PERCENT = 5.5652							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		394.33		412.03		395.42		413.44							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		1562.1		-72.374		-454.00		596.12		1282.1		1281.4			
ENGINE OIL		EOILT		SOILT		OILP		MANIFOLD PRESSURE = 28.491							
		188.03		226.25		71.287									
DYNO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.547									
		250.60		2367.7											
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
		99.602		99.611		107.55		96.082							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		84.033		1.6494		53.330		1799.3							
CELL TEMP. = 79.084				HEATER TEMP = 120.88				COOLER TEMP = 56.559							

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NASA-LEWIS		PRELIMINARY DATA		04/08/76	CADDEII	REC 04/08/76 21:35:30.081		FAC SEX15	PGM C003	RDG 3098
LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 80 %				MODE = 5.0000		NO. SCANS = 5				
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.390			RATED HP. = 160.00		HC RATIO= 2.1250		
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL				
	101.27	29.390	122.87	495.43	16.061	14.593				
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP				
	68.270	5.5172	44.958	42.907	41.419	6.0150				
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT				
	101.25	2.6898	3.3244	9365.0	73.227	91.085				
REL-HUM	1	2	HUMIDITY	% H2O VAPOR		CORRECTED HP				
	73.227	20.398	226.93	5.2110		73.215				
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP			
	0.083602	0.080977	1.2478	2350.5	2352.2	145.88	65.288			
WET CORRECTION FACTOR = 0.82799		EXHAUST MOLE. WT. = 27.397			EXHAUST DENSITY = 0.070938		EXHAUST FLOW RATE = 7794.3			
MEASURED CONC.	PART PER MILLION WET			PER CENT						
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY					
	1740.9	105.97	6.9755	10.741	0.054545					
CORRECTED CONC. TO WET BASIS			5.7757	8.8932	0.045163					
		HC	NOX	CO						
EMISSION RATE		0.48712	0.098290	32.683						
EMISSION MASS/MODE		0.048712	0.0098290	3.2682						
EMISSION MASS/RATED HP		0.00030445	6.1431E-05	0.020427						
MODE EMIS./STD. CYCLE %		16.024	4.0954	48.635						
CAL. FUEL AIR RATIO = 0.082670		MEAS. FUEL AIR RATIO = 0.083602			DIFF MEAS.& CAL. F/A PERCENT = -1.1150					
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4						
	355.47	366.03	362.19	364.08						
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2				
	1783.6	-111.63	-454.00	650.86	1179.4	1179.3				
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 20.611						
	188.20	174.83	70.591							
DYNO COND.	TORQUE	RPM	CYL. RACK PRESSURE = 29.511							
	144.11	2277.0								
INDUCTION AIR	IAIPT1	IAIRT2	TAIRT1	TAIRT2						
	101.34	101.27	124.82	97.496						
ORIFICE AIR	TEMP	DFLTAP	ORFP	FLJW						
	84.604	1.5468	53.443	1743.6						
CFLI TEMP. = 79.305		HEATER TEMP = 163.86			COOLER TEMP = 87.409					

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NASA-LEWIS		PRELIMINARY DATA		04/08/76	CADDEII	REC 04/08/76 21:40:39.778		FAC SEX15	PGM C003	RJG 3099
LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 80 %				MODE = 3.0000		NO. SCANS = 5				
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.390			RATED HP. = 160.00		HC RATIO = 2.1250		
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL				
	101.31	29.386	217.17	896.66	28.390	14.908				
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP				
	66.614	5.3045	45.002	75.008	72.844	5.9898				
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT				
	100.65	2.7045	3.4135	9393.8	73.071	91.050				
REL-HUM	1	2	HUMIDITY	% H2O VAPOR		CORRECTED HP				
	73.071	9.6610	221.64	5.0895		146.97				
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP			
	0.081240	0.078746	1.2125	2708.8	2710.9	250.80	129.35			
WET CORRECTION FACTOR = 0.81667		EXHAUST MOLE. WT. = 27.582			EXHAUST DENSITY = 0.071416		EXHAUST FLOW RATE = 13972.			
MEASURED CONC.	PART PER MILLION WET			PER CENT			378			
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY					
	1654.6	91.169	7.1897	10.686	0.031823					
CORRECTED CONC. TO WET BASIS			5.8716	8.7266	0.025989					
		HC	NOX	CO						
EMISSION RATE		0.82998	0.15159	59.563						
EMISSION MASS/MODE		0.0041499	0.00075797	0.22782						
EMISSION MASS/RATED HP		2.5937E-05	4.7373E-06	0.0018613						
MODE EMIS./STD. CYCLE %		1.3651	0.31582	4.4318						
CAL. FUEL AIR RATIO = 0.083160		MEAS. FUEL AIR RATIO = 0.081240			DIFF MEAS. & CAL. F/A PERCENT = 2.3639					
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4						
	407.47	422.30	405.13	415.57						
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2				
	1916.3	31.181	-19.575	950.68	1340.6	1339.3				
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.292						
	188.37	213.42	73.711							
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.555							
	240.70	2649.7								
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2						
	101.32	101.31	85.506	96.807						
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW						
	85.165	1.6956	53.301	1821.5						
CELL TEMP. = 79.216		HEATER TEMP = 154.07			COOLER TEMP = 85.312					

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NASA-LEWIS		PRELIMINARY DATA		04/08/76		CADDELL		REC 04/08/76 21:43:58.315		FAC SEX15		PGM C003		RDG 3100		
LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 80%								MODE = 4.0000		NO. SCANS = 5						
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 29.390				RATED HP. = 160.00		HC RATIO = 2.1250				
COMB. AIR		TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL									
		100.93	29.400	202.01	827.07	27.551	14.809									
COMB. FUEL		TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP									
		66.551	5.3741	45.003	68.588	66.484	6.0285									
COOLING AIR		TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT									
		130.47	2.6810	3.4730	9347.6	77.044	92.385									
REL-HUM		1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP										
		77.044	19.520	233.18	5.3546	131.12										
ENG. COND.		F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP								
		0.080384	0.077793	1.1998	2442.1	2444.5	253.35	117.81								
WET CORRECTION FACTOR = 0.80508				EXHAUST MOLE. WT. = 27.650				EXHAUST DENSITY = 0.071592				EXHAUST FLOW RATE = 12866.				
MEASURED CONC.		PART PER MILLION WET		PER CENT												
		HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY										
		1795.1	85.858	7.8213	10.346	0.040034										
CORRECTED CONC. TO WET BASIS				6.2968	8.3290	0.032271										
EMISSION RATE		HC	NOX	CO												
		0.82913	0.13145	58.817												
EMISSION MASS/MODE		0.069094	0.310955	4.9014												
EMISSION MASS/RATED HP		0.00043184	6.8466E-05	0.030634												
MODE EMIS./STD. CYCLE %		22.728	4.5644	72.937												
CAL. FUEL AIR RATIO = 0.084764				MEAS. FUEL AIR RATIO = 0.080384				DIFF MEAS. & CAL. F/A PERCENT = 5.4483								
CYL TEMP DEG.F		CYL-1	CYL-2	CYL-3	CYL-4											
		395.74	413.50	394.68	413.81											
EXT GAS TEMP DEG.F		EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2									
		1195.8	-111.01	-454.00	677.74	1289.6	1289.2									
ENGINE OIL		EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.521											
		187.98	199.06	71.303												
DYNO COND.		TORQUE	RPM	CYL. BACK PRESSURE = 29.554												
		249.49	2401.4													
INDUCTION AIR		IAIRT1	IAIRT2	TAIRT1	TAIRT2											
		100.91	100.93	84.760	96.385											
ORIFICE AIR		TEMP	DELTAP	ORFP	FLOW											
		85.340	1.6398	53.394	1792.2											
CELL TEMP. = 80.143				HEATER TEMP = 131.49				COOLER TEMP = 69.909								

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NASA-LEWIS		PRELIMINARY DATA		04/08/76	CADDE11	REC 04/08/76 21:51:30.348		FAC SEX15	PGM C003	RDG 3101
LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 80 %				MODE = 5.0000		NO. SCANS = 5				
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.390			RATED HP. = 160.00		HC RATIO = 2.1250		
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL				
	100.21	29.398	122.87	495.58	15.961	14.588				
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP				
	68.324	5.5175	44.956	42.833	40.903	6.0858				
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT				
	100.37	2.6356	3.2323	9257.8	75.098	90.875				
REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP						
	75.098	0.26003	225.46	5.1772 72.213						
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP			
	0.082536	0.079961	1.2319	2348.8	2351.3	144.19	64.485			
WET CORRECTION FACTOR = 0.82470			EXHAUST MOLE. WT. = 27.480		EXHAUST DENSITY = 0.071152		EXHAUST FLOW RATE = 7764.2			
MEASURED CONC.	PART PER MILLION WET			PER CENT						
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY					
	1778.6	114.55	6.9228	10.763	0.082888					
CORRECTED CONC. TO WET BASIS			5.7092	8.8766	0.068358					
EMISSION RATE	HC	NOX	CO							
	0.49575	0.10584	32.182							
EMISSION MASS/MODE	0.049575	0.010584	3.2182							
EMISSION MASS/RATED HP	0.00030984	5.5149E-05	0.020114							
MODE EMIS./STD. CYCLE %	16.308	4.4099	47.890							
CAL. FUEL AIR RATIO = 0.082471		MEAS. FUEL AIR RATIO = 0.082536		DIFF MEAS. & CAL. F/A PERCENT = -0.079799						
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4						
	348.05	360.50	357.34	355.11						
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2				
	1211.2	-390.26	-341.98	675.69	1157.6	1157.7				
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 20.611						
	187.72	272.19	70.987							
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.435							
	148.67	2291.3								
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2						
	100.26	100.21	139.48	97.302						
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW						
	83.594	1.5705	53.398	1758.1						
CELL TEMP. = 77.714		HEATER TEMP = 124.19		COOLER TEMP = 74.060						

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NASA-LEWIS		PRELIMINARY DATA		04/08/76	CADDEII	REC 04/08/76 22:05:32.924		FAC SEX15	PGM C003	RDG 3102
LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 80 %				MODE = 3.0000		NO. SCANS = 5				
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.390		RATED HP. = 160.00		HC RATIO = 2.1250		
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL				
	101.51	29.425	217.12	897.42	27.839	14.917				
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP				
	66.614	5.2778	45.002	72.196	70.162	5.9172				
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT				
	100.91	2.6223	3.3086	9231.4	71.278	90.445				
REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP						
	71.278	22.058	217.14	4.9864 146.35						
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP			
	0.078181	0.075829	1.1669	2716.5	2718.5	249.63	129.12			
WET CORRECTION FACTOR = 0.81594		EXHAUST MOLE. WT. = 27.827		EXHAUST DENSITY = 0.072051		EXHAUST FLOW RATE = 13815.				
MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	CO2 DRY	O2 DRY				
	HC PPM	NOX PPM	6.0589	11.185	0.033763					
	1515.0	103.45	4.9437	9.1266	0.027549					
CORRECTED CONC. TO WET BASIS			CO							
			HC	NOX	CO					
EMISSION RATE			0.75138	0.17008	49.586					
EMISSION MASS/MODE			0.0037569	0.00085038	0.24793					
EMISSION MASS/RATED HP			2.3481E-05	5.3149E-06	0.0015496					
MODE EMIS./STD. CYCLE %			1.2358	0.35433	3.6894					
CAL. FUEL AIR RATIO = 0.080525		MEAS. FUEL AIR RATIO = 0.078181		DIFF MEAS. & CAL. F/A PERCENT = 2.9972						
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4						
	419.88	432.63	416.31	430.66						
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2				
	1179.5	-19.369	28.012	874.49	1377.7	1376.1				
ENGINE OIL	FOILT	SOILT	OILT	MANIFOLD PRESSURE = 28.284						
	188.42	153.35	73.323							
DYNO COND.	TORQUE	PPM	CYL. BACK PRESSURE = 29.543							
	243.79	2662.2								
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2						
	101.47	101.51	131.17	97.079						
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW						
	85.165	1.6818	53.464	1814.3						
CELL TEMP. = 78.722	HEATER TEMP = 133.00		COOLER TEMP = 86.808							

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NASA-LEWIS		PRELIMINARY DATA		04/08/76	CADDEII	REC 04/08/76 22:11:57.729		FAC SEX15	PGM C003	RDG 3104
LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 80%				MODE = 5.0000		NO. SCANS = 5				
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.390		RATED HP. = 160.00		HC RATIO = 2.1250		
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL				
	99.438	29.381	122.55	494.52	15.972	14.578				
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP				
	67.509	5.5229	44.978	40.339	38.683	6.0795				
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT				
	99.395	2.6533	3.2951	9292.9	77.032	96.940				
REL-HUM	1	2	HUMIDITY	% H2O VAPOR		CORRECTED HP				
	77.032	32.605	226.09	5.1919		73.085				
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP			
	0.078224	0.075776	1.1675	2344.7	2347.2	146.35	65.335			
WET CORRECTION FACTOR = 0.81945		EXHAUST MOLE. WT. = 27.824		EXHAUST DENSITY = 0.072042		EXHAUST FLOW RATE = 7622.9				
MEASURED CONC.	PART PER MILLION WET		PER CENT							
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY					
	1568.6	143.82	5.6103	11.421	0.076268					
CORRECTED CONC. TO WET BASIS			4.5974	9.3590	0.062498					
EMISSION RATE	HC	NOX	CO							
	0.42925	0.13047	25.443							
EMISSION MASS/MODE	0.042925	0.013047	2.5443							
EMISSION MASS/RATED HP	0.00026828	8.1542E-05	0.015902							
MODE EMISS./STD. CYCLE %	14.120	5.4361	37.862							
CAL. FUEL AIR RATIO = 0.079371		MEAS. FUEL AIR RATIO = 0.078224		DIFF MEAS. & CAL. F/A PERCENT = 1.4670						
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4						
	360.47	371.90	370.28	375.87						
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2				
	811.87	-454.00	-454.00	470.12	1220.3	1220.4				
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 20.623						
	188.11	39.114	70.887							
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.465							
	147.83	2297.7								
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2						
	99.473	99.438	129.96	96.598						
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW						
	83.673	1.3948	53.464	1659.6						
CELL TEMP. = 77.670		HEATER TEMP = 107.78		COOLER TEMP = 60.652						

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NASA-LEWIS		PRELIMINARY DATA		04/08/76		CADDEII		REC 04/08/76 22:15:23.394		FAC SEX15		PGM C003		RDG 3105	
LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 80 %				MODE = 3.0000				NO. SCANS = 5							
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.390				RATED HP. = 160.00		HC RATIO = 2.1250					
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		100.44		29.357		216.69		895.61		27.471		14.911			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		65.601		5.2016		45.329		72.083		70.039		5.8842			
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		99.973		2.7360		3.3875		9455.5		72.784		90.090			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		72.784		33.411		214.71		4.9305		145.86					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.078202		0.075875		1.1672		2703.6		2705.9		249.74		128.56	
WET CORRECTION FACTOR = 0.81592				EXHAUST MOLE. WT. = 27.825				EXHAUST DENSITY = 0.072047				EXHAUST FLOW RATE = 13784.			
MEASURED CONC.		PART PER MILLION WET				PER CENT								383	
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		1476.8		120.45		6.1348		11.183		0.059466					
CORRECTED CONC. TO WET BASIS						5.0056		9.1248		0.048520					
		HC		NOX		CO									
EMISSION RATE		0.73083		0.19758		50.093									
EMISSION MASS/MODE		0.0036542		0.00098791		0.25046									
EMISSION MASS/RATED HP		2.2838E-05		6.1744E-06		0.0015654									
MODE EMIS./STD. CYCLE %		1.2020		0.41163		3.7271									
CAL.FUEL AIR RATIO = 0.080547				MEAS. FUEL AIR RATIO = 0.078202				DIFF MEAS.& CAL. F/A PERCENT = 2.9975							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		411.04		423.34		408.30		418.07							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		168.76		-8.5496		216.67		896.12		1362.4		1360.8			
ENGINE OIL		EOILT		SOILT		OILP		MANIFOLD PRESSURE = 28.347							
		188.29		189.40		73.335									
DYNO COND.		TORQUE		RPM		CYL.BACK PRESSURE = 29.533									
		244.82		2636.1											
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
		100.47		100.44		138.84		97.193							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		84.156		1.6966		53.414		1823.7							
CELL TEMP. = 78.156				HEATER TEMP = 156.39				COOLER TEMP = 87.542							

NASA-LEWIS		PRELIMINARY DATA		04/08/76	CADDEII	REC 04/08/76 22:18:59.058		FAC SEX15	PGM C003	RDG 3106
LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 80 %				MCDE = 4.0000		NO. SCANS = 5				
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.390		RATED HP. = 160.00		HC RATIO = 2.1250		
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL				
	100.04	29.396	201.16	826.12	26.257	14.814				
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP				
	66.085	5.3741	45.316	65.289	63.570	6.0255				
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT				
	99.481	2.6616	3.4503	9309.3	75.701	90.965				
REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP						
	75.701	37.150	222.49	5.1090		130.55				
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP			
	0.076953	0.074580	1.1485	2435.6	2437.3	253.87	117.73			
WET CORRECTION FACTOR = 0.80368			EXHAUST MOLE. WT. = 27.928		EXHAUST DENSITY = 0.072312		EXHAUST FLOW RATE = 12666.			
MEASURED CONC.	PART PER MILLION WET		PER CENT		O2 DRY					
	HC PPM	NOX PPM	CO DRY	CO2 DRY	0.067987					
	1622.7	122.05	6.6759	10.896	0.054640					
CORRECTED CONC. TO WET BASIS			5.3553		8.7571					
EMISSION RATE	HC	NOX	CO							
	0.73788	0.18397	49.339							
EMISSION MASS/MODE	0.061490	0.015331	4.1116							
EMISSION MASS/RATED HP	0.00038431	9.5820E-05	0.025698							
MODE EMIS./STD. CYCLE %	20.227	6.3880	61.185							
CAL. FUEL AIR RATIO = 0.081875		MEAS. FUEL AIR RATIO = 0.076950		DIFF MEAS. & CAL. F/A PERCENT = 5.4003						
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4						
	401.71	416.18	402.16	418.57						
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2				
	687.31	-448.58	-454.00	610.96	1310.3	1309.6				
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.587						
	187.88	196.26	70.987							
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.546							
	251.69	2382.1								
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2						
	100.02	100.04	136.85	96.182						
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW						
	84.788	1.7028	53.460	1825.8						
CELL TEMP. = 78.792		HEATER TEMP = 150.17		COOLER TEMP = 69.079						

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NASA-LEWIS PRELIMINARY DATA 04/08/76 CADDEII REC 04/08/76 22:22:45.534 FAC SEX15 PGM C003

LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 80.1% MCDE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.390 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	101.31	29.383	123.06	496.93	15.865	14.586

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	69.324	5.5340	44.929	40.474	38.752	6.1845

Cooling AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	101.28	2.6095	3.3150	9206.0	72.062	90.605

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	72.062	43.816	223.49	5.1320	73.403

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.077983	0.075570	1.1639	2347.9	2349.8	146.59	65.533

WET CORRECTION FACTOR = 0.81980 EXHAUST MOLE. WT. = 27.843 EXHAUST DENSITY = 0.072093 EXHAUST FLOW RATE = 7650.5

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	NOX PPM	CO DRY
1495.4	162.30	5.5601
		4.5582
CORRECTED CONC. TO WET BASIS		CO2 DRY
		11.428
		9.3689
		0.088089
		0.072215

EMISSION RATE	HC	NOX	CO
	0.41073	0.14775	25.317
EMISSION MASS/MODE	0.041073	0.014775	2.5317
EMISSION MASS/RATED HP	0.00025670	9.2347E-05	0.015823
MODE EMIS./STD. CYCLE %	13.511	6.1564	37.674

CAL. FUEL AIR RATIO = 0.079191 MEAS. FUEL AIR RATIO = 0.077983 DIFF MEAS. & CAL. F/A PERCENT = 1.5490

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	358.26	369.54	368.26	368.97

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	482.60	-310.72	-454.00	570.45	1209.3	1209.1

ENGINE OIL	ENILT	SOILT	OILP	MANIFOLD PRESSURE
	188.10	347.90	70.915	20.687

CYL. BACK PRESSURE = 29.527

DYNO COND.	TORQUE	RPM
	142.12	2309.4

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	101.27	101.31	141.56	96.816

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	85.507	1.4631	53.496	1695.8

CELL TEMP. = 79.428 HEATER TEMP = 127.93 COOLER TEMP = 56.936

NASA-LEWIS		PRELIMINARY DATA		04/08/76	CADDEII	REC 04/08/76 22:27:23.297		FAC SEX15	PGM C003	RNG 3108
LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 80%				MODE = 4.0000		NO. SCANS = 5				
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.390			RATED HP. = 160.00		HC RATIO = 2.1250	
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL				
	101.10	29.391	201.81	827.90	25.194	14.806				
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP				
	66.238	5.3666	45.012	65.659	63.501	5.9685				
COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT				
	100.83	2.6851	3.4359	9355.7	70.314	89.625				
REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP						
	70.314	55.242	213.02	4.8916 127.89						
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP			
	0.076702	0.074437	1.1448	2426.0	2427.4	249.96	115.46			
WET CORRECTION FACTOR = 0.80361		EXHAUST MOLE. WT. = 27.948		EXHAUST DENSITY = 0.072364		EXHAUST FLOW RATE = 12666.				
MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	CO2 DRY	CO2 DRY				
	HC PPM	NOX PPM	6.7473	10.839	0.084088					
	1712.6	123.96	5.4222	8.7101	0.067574					
CORRECTED CONC. TO WET BASIS										
EMISSION RATE	HC	NOX	CO							
	0.77874	0.18685	49.861							
EMISSION MASS/MODE	0.064895	0.015571	4.1551							
EMISSION MASS/RATED HP	0.00040559	9.7316E-05	0.025969							
MODE EMIS./STD. CYCLE %	21.347	6.4877	61.832							
CAL. FUEL AIR RATIO = 0.082059		MEAS. FUEL AIR RATIO = 0.076702		DIFF MEAS. & CAL. F/A PERCENT = 6.9839						
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4						
	395.99	414.43	399.31	414.08						
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2				
	602.07	-454.00	-210.38	764.36	1303.0	1302.0				
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.530						
	187.91	214.49	71.091							
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.547							
	260.45	2374.5								
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2						
	101.13	101.10	141.49	97.629						
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW						
	84.604	1.6464	53.554	1796.8						
CELL TEMP. = 78.351		HEATER TEMP = 172.54		COOLER TEMP = 91.926						

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NASA-LEWIS		PRELIMINARY DATA		04/08/76		CADDEII		REC 04/08/76 22:30:55.801		FAC SEX15		PGM C003		RDG 3109	
LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 80%				MCDE = 4.0000		NO. SCANS = 5									
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.390				RATED HP. = 160.00		HC RATIO = 2.1250					
COMB. AIR		TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL								
		98.713	29.405	201.95	830.88	25.695	14.825								
COMB. FUEL		TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP								
		64.578	5.3249	45.056	65.931	63.909	5.9760								
COOLING AIR		TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT								
		98.203	2.6580	3.3687	9302.2	76.827	90.155								
REL-HUM		1	2	HUMIDITY	% H2O VAPOR		CORRECTED HP								
		76.827	57.764	216.47	4.9709		129.38								
ENG. COND.		F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP							
		0.076918	0.074610	1.1480	2440.6	2442.2	251.76	116.99							
WET CORRECTION FACTOR = 0.80532				EXHAUST MOLE. WT. = 27.930		EXHAUST DENSITY = 0.072318		EXHAUST FLOW RATE = 12728.							
MEASURED CONC.		PART PER MILLION WET		PER CENT											
		HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY									
		1813.5	132.46	6.6169	10.839	0.074967									
CORRECTED CONC. TO WET BASIS				5.3287	8.7286	0.060372									
EMISSION RATE		HC	NOX	CO											
		0.82865	0.20063	49.241											
EMISSION MASS/MODE		0.069054	0.016720	4.1034											
EMISSION MASS/RATED HP		0.00043159	0.00010450	0.025646											
MODE EMIS./STD. CYCLE %		22.715	6.9665	61.062											
CAL. FUEL AIR RATIO = 0.081919		MEAS. FUEL AIR RATIO = 0.076918		DIFF MEAS. & CAL. F/A PERCENT = 6.5019											
CYL TEMP DEG.F		CYL-1	CYL-2	CYL-3	CYL-4										
		394.92	412.03	398.22	416.58										
EXT GAS TEMP DEG.F		EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2								
		741.58	-454.00	-174.70	680.26	1305.0	1304.2								
ENGINE OIL		EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.509										
		187.70	236.80	71.407											
DYNO COND.		TORQUE	RPM	CYL. BACK PRESSURE = 29.546											
		252.72	2379.1												
INDUCTION AIR		TAIRT1	TAIRT2	TAIRT1	TAIRT2										
		98.713	98.713	85.681	96.313										
ORIFICE AIR		TEMP	DELTAP	ORFP	FLOW										
		83.357	1.6380	53.415	1794.5										
CELL TEMP. = 77.458		HEATER TEMP = 161.29		COOLER TEMP = 71.603											

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NASA-LEWIS		PRELIMINARY DATA		04/08/76		CADDEII		REC 04/08/76 22:35:11.126		FAC SEX15		PGM C003		RDG 3110	
LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 80 %				MODE = 3.0000				NO. SCANS = 5							
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.390				RATED HP. = 160.00		HC RATIO = 2.1250					
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		99.429		29.386		216.24		894.49		27.509		14.901			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		65.072		5.2073		45.343		68.002		66.052		5.8473			
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		98.730		2.7014		3.4359		9387.8		75.169		90.150			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		75.169		46.957		215.28		4.9435		144.75					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.073843		0.071640		1.1221		2712.4		2714.5		247.52		127.83	
WET CORRECTION FACTOR = 0.81574				EXHAUST MOLE. WT. = 28.187				EXHAUST DENSITY = 0.072982				EXHAUST FLOW RATE = 13538.			
MEASURED CONC.		PART PER MILLION WET				PER CENT									
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		1331.1		247.59		4.3051		11.982		0.047285					
CORRECTED CONC. TO WET BASIS						3.5118		9.7741		0.038572					
EMISSION RATE		HC		NOX		CO									
		0.64696		0.39889		34.517									
EMISSION MASS/MODE		0.0032348		0.0019944		0.17258									
EMISSION MASS/RATED HP		2.0218E-05		1.2465E-05		0.0010787									
MODE EMIS./STD. CYCLE %		1.0641		0.83102		2.5682									
CAL. FUEL AIR RATIO = 0.076527				MEAS. FUEL AIR RATIO = 0.073843				DIFF MEAS. & CAL. F/A PERCENT = 3.6347							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		425.87		435.64		423.52		436.86							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		196.31		295.92		386.20		1066.3		1409.3		1407.4			
ENGINE OIL		EOILT		SOILT		OILP		MANIFOLD PRESSURE = 28.319							
		188.37		190.34		73.323									
DYNO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.565									
		245.36		2635.8											
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
		99.395		99.429		87.402		96.308							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		84.024		1.7109		53.442		1831.2							
CELL TEMP. = 77.935				HEATER TEMP = 131.84				COOLER TEMP = 66.480							

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NASA-LEWIS PRELIMINARY DATA 04/08/76 CADDEII REC. 04/08/76 22:38:49.215 FAC SEX12  
 LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 80.3 MODE = 4.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.390 RATED HP. = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP 100.27	PRESS 29.349	CFM 200.68	DRY FLOW 825.12	VAPOR FLOW 25.337	PRESS TOTAL 14.818
COMB. FUEL	TEMP 66.363	PRESS 5.4035	DENSITY 45.008	TURBO FLOW 62.276	FLOW TRON 59.832	FPIP 6.0663
COOLING AIR	TEMP 99.921	UDEL-HOOD 2.6887	DEL-HOOD 3.3991	FLOW 9362.8	REL-HUM 72.783	DEW-POINT 89.925
REL-HUM	1 72.783	2 61.300	HUMIDITY 214.95	% H2O VAPOR 4.9359	CORRECTED HP 130.09	
FNG. COND.	F/A DRY 0.072513	F/A WET 0.070352	EQU. RATIO 1.0823	RPM-1 2433.0	RPM-2 2435.2	TORQUE 253.67 BHP 117.51

WET CORRECTION FACTOR = 0.80470 EXHAUST MOL. WT. = 28.300 EXHAUST DENSITY = 0.073274 EXHAUST FLOW RATE = 12423.  

MEASURED CONC.	PART PER MILLION WET HC PPM 1488.5	NOX PPM 262.02	CO DRY 4.8056	PER CENT CO2 DRY 11.678	O2 DRY 0.066727
CORRECTED CONC. TO WET BASIS			3.8671	9.3972	0.053695

EMISSION RATE	HC 0.66387	NOX 0.38735	CO 34.877
EMISSION MASS/MODE	0.055323	0.032279	2.9065
EMISSION MASS/RATED HP	0.00034577	0.00020174	0.018165
MODE EMIS./STD. CYCLE %	18.198	13.450	43.251

CAL. FUEL AIR RATIO = 0.077703 MEAS. FUEL AIR RATIO = 0.072513 DIFF MEAS. & CAL. F/A PERCENT = 7.1583  

CYL TEMP DEG.F	CYL-1 409.72	CYL-2 422.69	CYL-3 417.04	CYL-4 430.73
EXT GAS TEMP DEG.F	EXT-1 433.44	EXT-2 -264.95	EXT-3 -430.09	EXT-4 758.17
				SEXT-1 1351.3
				SEXT-2 1350.6

ENGINE OIL  
 E7ILT 187.77 SOILT 266.65 OILP 71.075  
 MANIFOLD PRESSURE = 28.600  
 DYNO COND.  
 TORQUE 249.92 RPM 2384.8  
 CYL. BACK PRESSURE = 29.513  

INDUCTION AIR	IAIRT1 100.21	IAIRT2 100.27	TAIRT1 166.83	TAIRT2 96.581
ORIFICE AIR	TEMP 84.542	DELTAP 1.6636	ORFP 53.452	FLOW 1805.9

CELL TEMP. = 78.978 HEATER TEMP = 116.65 COOLER TEMP = 67.186

NASA-LEWIS		PRELIMINARY DATA		04/08/76	CADDEII	REC 04/08/76 22:39:08.844		FAC SEX15	PGM C003	RDG 3112	
LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 80 %				MODE = 4.0000		NO. SCANS = 5					
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.390		RATED HP. = 160.00		HC RATIO = 2.1250			
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL					
	100.19	29.350	200.70	825.74	25.457	14.827					
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP					
	66.390	5.3990	45.008	61.205	59.382	6.0627					
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT					
	99.757	2.6450	3.3551	9276.5	73.276	90.065					
REL-HUM	1	2	HUMIDITY	% H2O VAPOR		CORRECTED HP					
	73.276	52.727	215.80	4.9556		129.91					
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP				
	0.071913	0.059762	1.0733	2431.6	2432.6	253.41	117.32				
WET CORRECTION FACTOR = 0.80093		EXHAUST MLE. WT. = 28.351		EXHAUST DENSITY = 0.073407		EXHAUST FLOW RATE = 12404.					
MEASURED CONC.	PART PER MILLION WET		PER CENT		O2 DRY						
	HC PPM	NOX PPM	CO DRY	CO2 DRY	0.074707						
	1401.9	279.92	4.8438	11.752	0.059836						
CORRECTED CONC. TO WET BASIS		CO DRY		CO2 DRY							
			3.8796	9.4122							
EMISSION RATE	HC	NOX	CO								
	0.62431	0.41320	34.938								
EMISSION MASS/MODE	0.052026	0.034433	2.9115								
EMISSION MASS/RATED HP	0.00032516	0.00021521	0.018197								
MODE EMIS./STD. CYCLE %	17.114	14.347	43.326								
CAL.FUEL AIR RATIO = 0.077640		MEAS. FUEL AIR RATIO = 0.071913		DIFF MEAS.& CAL. F/A PERCENT = 7.9631							
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4							
	408.75	422.38	416.93	430.42							
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2					
	326.74	-352.36	-454.00	316.50	1351.1	1350.5					
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.513							
	187.79	18.201	71.063								
DYNO COND.	TORQUE	RPM	CYL.BACK PRESSURE = 29.542								
	233.43	2370.9									
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2							
	100.13	100.19	134.92	96.454							
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW							
	84.551	1.6456	53.419	1796.5							
CELL TEMP. = 78.881		HEATER TEMP = 113.63		COOLER TEMP = 66.953							

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NASA-LEWIS		PRELIMINARY DATA		04/08/76		CADDEII		REC 04/08/76 22:43:46.700		FAC SEX15		PGM C003		RDG 3113	
LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 80 %															
MODE = 5.0000															
NO. SCANS = 5															
ENGINE TIMING = 25.000				DEG. .		BAROMETRIC PRESSURE = 29.390				RATED HP. = 160.00				HC RATIO = 2.1250	
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		100.93		29.371		124.49		503.86		15.541		14.587			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		70.110		5.5466		44.309		39.718		37.381		6.0522			
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		100.96		2.6555		3.3222		9297.3		70.534		89.560			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		70.534		18.872		215.91		4.9580		71.567					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.074189		0.071969		1.1773		2349.3		2351.8		143.11		64.013	
WET CORRECTION FACTOR = 0.82913				EXHAUST MLE. WT. = 28.157				EXHAUST DENSITY = 0.072906				EXHAUST FLOW RATE = 7636.9			
MEASURED CONC.		PART PER MILLION WET				CO DRY		PFR CENT		CO2 DRY		O2 DRY			
		HC PPM				NOX PPM		3.4237		12.351		0.18316			
CORRECTED CONC. TO WET BASIS		350.30				2.8387		10.240		0.15186					
EMISSION RATE		HC		NOX		CO		0.34364		0.31835		15.739			
EMISSION MASS/MODE		0.034364		0.031835		1.5739									
EMISSION MASS/RATED HP		0.00021478		0.00019897		0.0098368									
MODE EMIS./STD. CYCLE %		11.304		13.265		23.421									
CAL. FUEL AIR RATIO = 0.074147				MEAS. FUEL AIR RATIO = 0.074189				DIFF MEAS. & CAL. F/A PERCENT = -0.057123							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		363.82		369.38		372.74		372.93							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		206.88		440.45		-92.222		714.34		1255.2		1255.2			
ENGINE OIL		EOILT		SOILT		OILP		MANIFOLD PRESSURE = 20.939							
		188.05		189.76		70.907									
DYNO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.426									
		148.15		2293.5											
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
		100.93		100.93		148.20		96.508							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		85.262		1.5689		53.439		1754.5							
CELL TEMP. = 79.269				HEATER TEMP = 100.22				COOLER TFMP = 69.686							

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NASA-LEWIS		PRELIMINARY DATA		04/08/76		CADDEII		REC 04/08/76 22:54:43.565		FAC SEX15		PGM C003		RDC 3116	
LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 80 %				MODE = 5.0000				NO. SCANS = 5							
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.390				RATED HP. = 160.00				HC RATIO = 2.1250			
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		99.335		29.371		124.55		503.89		15.607		14.586			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		68.583		5.5487		44.949		38.253		36.898		6.1056			
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		99.360		2.6131		3.2870		9213.2		74.293		89.685			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		74.293		12.705		216.81		4.9788		74.014					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.073225		0.071025		1.0929		2350.9		2353.0		148.23		66.352	
WET CORRECTION FACTOR = 0.82399				EXHAUST MJLE. WT. = 28.239				EXHAUST DENSITY = 0.073117				EXHAUST FLOW RATE = 7609.7			
MEASURED CONC.		PART PER MILLION WET				PER CENT									
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		1241.7		346.79		3.4485		12.350		0.16670					
CORRECTED CONC. TO WET BASIS						2.8415		10.176		0.13736					
		HC		NOX		CO									
EMISSION RATE		0.33922		0.31404		15.698									
EMISSION MASS/MODE		0.033922		0.031404		1.5698									
EMISSION MASS/RATED HP		0.00021201		0.00019627		0.0098114									
MODE EMIS./STD. CYCLE %		11.159		13.085		23.360									
CAL.FUEL AIR RATIO = 0.074247				MEAS. FUEL AIR RATIO = 0.073225				DIFF MEAS.& CAL. F/A PERCENT = 1.3949							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		365.51		372.65		375.22		377.31							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		256.77		-110.51		-15.355		724.63		1260.5		1260.5			
ENGINE OIL		EOILT		SOILT		OILP		MANIFOLD PRESSURE = 20.944							
		188.08		120.52		70.983									
DYNO COND.		TORQUE		RPM		CYL.BACK PRESSURE = 29.516									
		147.64		2298.5											
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
		99.395		99.335		84.504		96.561							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		83.532		1.6029		53.357		1775.6							
CELL TEMP. = 77.502				HEATER TEMP = 109.27				COOLER TEMP = 73.323							

34	NASA-LEWIS	PRELIMINARY DATA	04/09/76	CADDEII	REC 04/09/76 15:16:42.101	FAC SEX15	PGM C003	RDG 3121
35	LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 30 %				MODE = 3.0000	NO. SCANS = 5		
36	ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.400		RATED HP. = 160.00		HC RATIO = 2.1250
37	COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
38		99.886	29.396	219.39	937.24	11.121	14.942	
39	COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
40		70.047	5.3462	44.910	82.116	80.912	5.9703	
41	COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
42		99.904	3.2768	4.2120	10459.	29.538	62.467	
43	REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
44		29.538	4.5444	83.061	1.9074	154.67		
45	ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
46		0.086330	0.085318	1.2885	2690.8	2693.0	276.62	141.72
47	WET CORRECTION FACTOR = 0.83799			EXHAUST MOLE. WT. = 27.189		EXHAUST DENSITY = 0.070398		EXHAUST FLOW RATE = 14620.
48	MEASURED CONC.	PART PER MILLION WET			PER CENT			
49		HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
50		1702.6	171.89	9.3602	10.820	0.090509		
51	CORRECTED CONC. TO WET BASIS			7.8438	9.0669	0.075846		
52		HC	NOX	CO				
53	EMISSION RATE	0.89365	0.29906	83.259				
54	EMISSION MASS/MODE	0.0044682	0.0014953	0.41629				
55	EMISSION MASS/RATED HP	2.7927E-05	9.3456E-06	0.0026018				
56	MODE EMIS./STD. CYCLE %	1.4698	0.62304	6.1949				
57	CAL. FUEL AIR RATIO = 0.086364		MEAS. FUEL AIR RATIO = 0.086330		DIFF MEAS. & CAL. F/A PERCENT = 0.039078			
58	CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4			
59		390.25	409.32	386.14	386.75			
60	EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
61		559.87	-454.00	-297.52	551.85	1248.4	1245.8	
62	ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.403			
63		159.40	219.29	73.379				
64	DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.523				
65		275.79	2656.9					
66	INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2			
67		99.921	99.886	106.52	96.214			
68	ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW			
69		90.646	1.0794	54.246	1454.1			
70	CELL TEMP. = 76.493		HEATER TEMP = 128.35		COOLER TEMP = 103.31			

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NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDET1 REC.04/09/76 15:21:20.728 FAC SEX15 PGM C003 RDG 3122

LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 30.8 MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.400 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	100.84	29.395	195.93	829.37	9.9783	14.811

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	68.162	5.3705	44.960	72.109	70.066	6.0345

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	100.06	3.0081	3.9164	9973.3	28.838	62.602

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	28.838	47.805	84.217	1.9339	129.57

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.084481	0.083476	1.2509	2436.9	2439.2	260.95	121.08

WET CORRECTION FACTOR = 0.83058 EXHAUST MOLE. WT. = 27.329 EXHAUST DENSITY = 0.070762 EXHAUST FLOW RATE = 12851.

MEASURED CONC.	PART PER MILLION WET	NOX PPM	CO DRY	PER CENT	CO2 DRY	O2 DRY
	HC PPM	384.16	9.2750	10.954	0.11427	0.094911
CORRECTED CONC. TO WET BASIS			7.7037	9.0984		

EMISSION RATE	HC	NOX	CO
	0.87181	0.58751	71.878
EMISSION MASS/MODE	0.072651	0.048959	5.9898
EMISSION MASS/RATED HP	0.00045407	0.00030600	0.037436
MODE EMIS./STD. CYCLE %	23.898	20.400	89.134

CAL. FUEL AIR RATIO = 0.086060 MEAS. FUEL AIR RATIO = 0.084481 DIFF MEAS. & CAL. F/A PERCENT = 1.8697

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	372.73	394.65	429.18	434.55

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1355.3	-342.27	-373.10	601.39	1263.6	1261.8

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.038
	174.57	226.09	68.299	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.553
	269.33	2407.1	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	100.95	100.84	72.850	96.271

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	92.353	2.0126	53.607	1963.3

CELL TEMP. = 78.103 HEATER TEMP = 115.71 COOLER TEMP = 112.81

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NASA-LEWIS		PRELIMINARY DATA		04/09/76		CADDEII		REC 04/09/76 15:33:15.406		FAC SEX15		PGM C003		RDG 3123	
LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 30 %				MODE = 3.0000		NO. SCANS = 5									
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.390				RATED HP. = 160.00		HC RATIO = 2.1250					
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		99.136		29.399		218.06		930.32		11.238		14.919			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		66.112		5.3120		45.015		81.842		80.087		5.9772			
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		99.067		3.0061		3.9178		9969.7		30.703		62.922			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		30.703		30.079		84.561		1.9418		153.33					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.086085		0.085058		1.2849		2697.1		2699.4		273.67		140.54	
WET CORRECTION FACTOR = 0.83564				EXHAUST MOLE. WT. = 27.207				EXHAUST DENSITY = 0.070446				EXHAUST FLOW RATE = 14502.			
MEASURED CONC.		PART PER MILLION WET				PER CENT									
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		1560.2		146.35		9.4382		10.825		0.053545					
CORRECTED CONC. TO WET BASIS						7.8869		9.0458		0.044745					
		HC		NOX		CO									
EMISSION RATE		0.81228		0.25258		83.040									
EMISSION MASS/MODE		0.0040614		0.0012629		0.41520									
EMISSION MASS/RATED HP		2.5384E-05		7.8931E-06		0.0025950									
MODE EMIS./STD. CYCLE %		1.3360		0.52621		6.1786									
CAL. FUEL AIR RATIO = 0.086542				MEAS. FUEL AIR RATIO = 0.086085				DIFF MEAS. & CAL. F/A PERCENT = 0.53051							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		420.04		443.27		415.43		429.92							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		469.60		-422.56		-120.83		596.05		1309.0		1306.9			
ENGINE OIL		EOILT		SOILT		OILP		MANIFOLD PRESSURE = 28.366							
		189.15		176.99		73.183									
DYNO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.546									
		278.90		2621.1											
INDUCTION AIR		IAIRT1		IAIPT2		TAIRT1		TAIRT2							
		99.248		99.136		74.319		95.912							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		90.193		1.0992		52.949		1467.8							
CELL TEMP. = 77.077				HEATER TEMP = 103.31				COOLER TEMP = 105.96							

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NASA-LEWIS

PRELIMINARY DATA

04/09/76

CADDE11

REC 04/09/76 15:40:35.671

FAC SEX15

PGM C003

RDG 3124

LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 30 %

MODE = 4.0000

ND. SCANS = 5

ENGINE TIMING = 25.000

DEG.

BAROMETRIC PRESSURE = 29.390

RATED HP. = 160.00

HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	100.63	29.323	194.25	820.69	9.9589	14.785

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPTP
	66.739	5.3738	44.998	69.799	69.127	6.0330

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	99.921	2.9754	3.8572	9912.5	29.220	62.792

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	29.220	31.757	84.944	1.9506	128.82

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.084231	0.083221	1.2572	2429.5	2431.6	260.24	120.38

WET CORRECTION FACTOR = 0.82913

EXHAUST MOLE. WT. = 27.349

EXHAUST DENSITY = 0.070812

EXHAUST FLOW RATE = 12706.

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	O2 DRY
	1758.6	356.73	9.2307	0.049285
CORRECTED CONC. TO WET BASIS			7.6535	0.040864

EMISSION RATE	HC	NOX	CO
	0.80219	0.53939	70.602
EMISSION MASS/MODE	0.066849	0.044949	5.8835
EMISSION MASS/RATED HP	0.00041781	0.00028093	0.036772
MODE EMIS./STD. CYCLE %	21.990	18.729	87.553

CAL. FUEL AIR RATIO = 0.086128

MEAS. FUEL AIR RATIO = 0.084231

DIFF MEAS. &amp; CAL. F/A PERCENT = 2.2528

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	372.93	397.45	436.26	442.42

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	705.63	-288.55	-86.649	790.84	1280.9	1279.8

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 27.866
	187.56	330.20	71.107	

DYNO COND.	TORQUE	RPM	CYL BACK PRESSURE = 29.464
	270.36	2331.5	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	100.76	100.63	168.37	96.784

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	90.768	0.087309	52.762	312.51

CELL TEMP. = 78.324

HEATER TEMP = 110.40

COOLER TEMP = 104.03

NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDEII REC 04/09/76 15:43:47.915 FAC SEX15 PGM C003 RDG 3125  
 LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 30 % MCDE = 5.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG: BAROMETRIC PRESSURE = 29.390 RATED HP. = 160.00 HC RATIO = 2.1250  
 COMB. AIR TEMP 98.540 PRESS 29.405 CFM 115.57 DRY FLOW 481.40 VAPOR FLOW 5.8503 PRESS TOTAL 14.565  
 COMB. FUEL TEMP 68.010 PRESS 5.4935 DENSITY 44.964 TURBO FLOW 44.955 FLOW TRON 42.433 FPIP 6.0480  
 COOLING AIR TEMP 98.601 UDEL-HOOD 2.9370 DEL-HOOD 3.8336 FLOW 9840.4 REL-HUM 30.699 DEW-POINT 62.407  
 REL-HUM 1 2 HUMIDITY % H2O VAPOR CORRECTED HP  
 30.699 53.743 85.068 1.9534 70.485  
 ENG. COND. F/A DRY 0.088145 F/A WET 0.087086 EQU. RATIO 1.3156 RPM-1 2350.9 RPM-2 2352.7 TORQUE 146.56 BHP 65.600  
 WET CORRECTION FACTOR = 0.84232 EXHAUST MOLE. WT. = 27.053 EXHAUST DENSITY = 0.070047 EXHAUST FLOW RATE = 7561.9  
 MEASURED CONC. PART PER MILLION WET PER CENT  
 HC PPM NOX PPM CO DRY CO2 DRY  
 2021.8 120.41 9.6176 10.647 0.097690  
 CORRECTED CONC. TO WET BASIS 8.1011 8.9681 0.082286  
 EMISSION RATE HC NOX CO  
 0.54886 0.10835 44.475  
 EMISSION MASS/MODE 0.054886 0.010835 4.4474  
 EMISSION MASS/RATED HP 0.00034304 6.7721E-05 0.027797  
 MODE EMIS./STD. CYCLE % 18.055 4.5148 66.182  
 CAL. FUEL AIR RATIO = 0.087152 MEAS. FUEL AIR RATIO = 0.088145 DIFF MEAS. & CAL. F/A PERCENT = -1.1262  
 CYL TEMP DEG.F CYL-1 346.24 CYL-2 361.95 CYL-3 364.59 CYL-4 365.04  
 EXT GAS TEMP DEG.F EXT-1 1611.5 EXT-2 -210.04 EXT-3 -27.147 EXT-4 671.44 SEXT-1 1155.2 SEXT-2 1155.3  
 ENGINE OIL EOILT 187.71 SOILT 329.55 OILP 71.055 MANIFOLD PRESSURE = 19.512  
 DYNO COND. TORQUE 151.45 RPM 234.2 CYL. BACK PRESSURE = 29.476  
 INDUCTION AIR IAIRT1 98.929 IAIRT2 98.540 TAIRT1 180.93 TAIRT2 95.829  
 ORIFICE AIR TEMP 89.347 DELTAP 1.1048 ORFP 52.217 FLOW 1472.6  
 CFLL TEMP. = 77.050 HEATER TEMP = 107.57 COOLER TEMP = 104.12

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NASA-LEWIS		PRELIMINARY DATA		04/09/76		CADDEII		REC 04/09/76 15:49:13.752		FAC SEX15		PGM C003		RDG 3126	
LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 30 %															
MODE = 3.0000															
NO. SCANS = 5															
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 29.380				RATED HP. = 160.00		HC RATIO = 2.1250			
COMP. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		98.273		29.393		217.91		929.03		11.306		14.908			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		64.992		5.2655		45.045		82.310		80.177		5.9355			
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		98.169		2.9848		3.9106		9930.1		31.721		63.107			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		31.721		26.953		85.191		1.9563		153.57					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.086302		0.085264		1.2881		2694.7		2696.2		274.50		140.84	
WET CORRECTION FACTOR = 0.83658				EXHAUST MOLE. WT. = 27.191				EXHAUST DENSITY = 0.070404				EXHAUST FLOW RATE = 14495.			
MEASURED CONC.		PART PER MILLION WET				PER CENT									
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		1646.6		143.65		9.4293		10.776		0.061146					
CORRECTED CONC. TO WET BASIS						7.8884		9.0152		0.051154					
EMISSION RATE		HC		NOX		CO									
		0.85683		0.24779		83.013									
EMISSION MASS/MODE		0.0042842		0.0012390		0.41507									
EMISSION MASS/RATED HP		2.6776E-05		7.7435E-06		0.0025042									
MODE EMIS./STD. CYCLE %		1.4093		0.51623		6.1766									
CAL. FUEL AIR RATIO = 0.086614				MEAS. FUEL AIR RATIO = 0.086302				DIFF MEAS. & CAL. F/A PERCENT = 0.36128							
CYL TEMP DEG. F		CYL-1		CYL-2		CYL-3		CYL-4							
		412.91		430.62		412.20		419.72							
EXT G/S TEMP DEG. F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		519.87		-454.00		241.20		814.12		1304.1		1302.1			
ENGINE OIL		EOILT		SOILT		OILP		MANIFOLD PRESSURE = 28.339							
		188.26		255.98		73.279									
DYNO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.541									
		275.18		2613.7											
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
		98.342		98.273		195.45		95.808							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		88.674		2.0205		52.602		1973.5							
CELL TEMP. = 77.307				HEATER TEMP = 112.57				COOLER TEMP = 106.74							

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NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDEII REC 04/09/76 15:52:57.108 FAC SEX15 PCM C003 RDG 3127

LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 30 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.380 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	98.704	29.346	193.15	817.82	9.9294	14.804

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	65.655	5.3687	45.027	70.500	68.833	6.0057

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	98.886	2.9043	3.9598	9778.8	31.019	62.842

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	31.019	15.674	84.989	1.9516 128.19

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.084167	0.083157	1.2562	2432.3	2434.7	259.16	120.02

WET CORRECTION FACTOR = 0.83004 EXHAUST MOLE. WT. = 27.354 EXHAUST DENSITY = 0.070825 EXHAUST FLOW RATE = 12659.

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	1967.2	365.89	9.0885	11.052	0.077888	
CORRECTED CONC. TO WET BASIS			7.5438	9.1738	0.064650	

	HC	NOX	CO
EMISSION RATE	0.89401	0.55118	69.331
EMISSION MASS/MODE	0.074501	0.045932	5.7776
EMISSION MASS/RATED HP	0.00046563	0.00028707	0.036110
MODE EMIS./STD. CYCLE %	24.507	19.138	85.976

CAL. FUEL AIR RATIO = 0.085801 MEAS. FUEL AIR RATIO = 0.084167 DIFF MEAS. & CAL. F/A PERCENT = 1.9422

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	376.60	402.86	434.45	441.18

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1063.0	-336.68	105.21	838.98	1279.4	1278.3

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 27.904
	187.53	205.50	71.263	

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.481
	262.33	2356.3	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	98.843	98.704	194.29	95.771

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	89.312	2.9960	53.098	2375.4

CFLI TEMP. = 78.757 HEATER TEMP = 101.89 COOLER TEMP = 105.41

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NASA-LEWIS		PRELIMINARY DATA		04/09/76		CADDEII		REC 04/09/76 15:56:38.467		FAC SEX15		PGM C003		RDG 3128	
LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 30 %															
MODE = 5.0000															
NO. SCANS = 5															
ENGINE TIMING = 25.000															
DEG.															
BAROMETRIC PRESSURE = 29.380															
RATE) HP. = 160.00															
HC RATIO = 2.1250															
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		98.756		29.383		115.75		482.18		5.9582		14.566			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		68.833		5.4956		44.943		44.508		43.144		6.0603			
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		99.110		2.9273		3.9042		9822.2		31.003		62.872			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		31.003		35.528		86.497		1.9863		70.297					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.089477		0.088385		1.3355		2353.7		2355.5		145.88		65.376	
WET CORRECTION FACTOR = 0.84783															
EXHAUST MOLE. WT. = 26.955															
EXHAUST DENSITY = 0.069793															
EXHAUST FLOW RATE = 7612.3															
MEASURED CONC.		PART PER MILLION WET		HC PPM		NOX PPM		CO DRY		PER CENT		CO2 DRY		O2 DRY	
		2222.4		121.49		9.5459		10.693		0.11623					
CORRECTED CONC. TO WET BASIS				8.0933		9.0659		0.098545							
EMISSION RATE		HC		NOX		CO									
		0.60735		0.11005		44.728									
EMISSION MASS/MODE		0.060735		0.011005		4.4728									
EMISSION MASS/RATED HP		0.00037959		6.8784E-05		0.027955									
MODE EMIS./STD. CYCLE %		19.978		4.5856		66.559									
CAL.FUEL AIR RATIO = 0.086998															
MEAS. FUEL AIR RATIO = 0.089477															
DIFF MEAS.& CAL. F/A PERCENT = -2.7708															
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		349.82		363.72		364.82		361.64							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		1070.0		-389.34		119.51		678.81		1147.5		1147.7			
ENGINE OIL		EOILT		SOILT		OILP		MANIFOLD PRESSURE = 19.507							
		187.84		174.26		71.027									
DYNO COND.		TORQUE		RPM		CYL.BACK PRESSURE = 29.495									
		151.20		2315.3											
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
		99.127		98.756		150.00		95.612							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		89.905		4.0070		51.428		2739.0							
CELL TEMP. = 78.686															
HEATER TEMP = 127.95															
COOLER TEMP = 108.91															

004

NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDET REC 04/09/76 16:03:41.156 FAC SEX15 PGM C003 RDG 3129  
 LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 30 % MODE = 3.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.380 RATED HP = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL																																								
	100.44	29.384	217.62	926.71	11.885	14.907																																								
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP																																								
	67.769	5.2817	44.971	79.198	77.315	5.9175																																								
COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT																																								
	100.33	2.9735	3.9845	9908.9	31.279	64.572																																								
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP																																									
	31.279	30.405	89.775	2.0615	154.94																																									
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE																																								
	0.083429	0.082373	1.2452	2696.9	2699.4	275.67																																								
						BHP																																								
						141.56																																								
WET CORRECTION FACTOR = 0.83300			EXHAUST MOLE. WT. = 27.410		EXHAUST DENSITY = 0.070972																																									
					EXHAUST FLOW RATE = 14314.																																									
<table border="1"> <tr> <td colspan="3">PART PER MILLION WET</td> <td colspan="2">PER CENT</td> <td></td> </tr> <tr> <td>MEASURED CONC.</td> <td>HC PPM</td> <td>NOX PPM</td> <td>CO DRY</td> <td>CO2 DRY</td> <td>O2 DRY</td> </tr> <tr> <td></td> <td>1703.4</td> <td>205.31</td> <td>8.3415</td> <td>11.443</td> <td>0.079448</td> </tr> <tr> <td>CORRECTED CONC. TO WET BASIS</td> <td></td> <td></td> <td>6.9485</td> <td>9.5324</td> <td>0.066180</td> </tr> </table>							PART PER MILLION WET			PER CENT			MEASURED CONC.	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		1703.4	205.31	8.3415	11.443	0.079448	CORRECTED CONC. TO WET BASIS			6.9485	9.5324	0.066180																
PART PER MILLION WET			PER CENT																																											
MEASURED CONC.	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY																																									
	1703.4	205.31	8.3415	11.443	0.079448																																									
CORRECTED CONC. TO WET BASIS			6.9485	9.5324	0.066180																																									
<table border="1"> <tr> <td></td> <td>HC</td> <td>NOX</td> <td>CO</td> </tr> <tr> <td>EMISSION RATE</td> <td>0.87532</td> <td>0.34972</td> <td>72.209</td> </tr> <tr> <td>EMISSION MASS/MODE</td> <td>0.0043766</td> <td>0.0017486</td> <td>0.36105</td> </tr> <tr> <td>EMISSION MASS/RATED HP</td> <td>2.7354E-05</td> <td>1.0929E-05</td> <td>0.0022565</td> </tr> <tr> <td>MODE EMIS./STD. CYCLE %</td> <td>1.4397</td> <td>0.72859</td> <td>5.3727</td> </tr> </table>								HC	NOX	CO	EMISSION RATE	0.87532	0.34972	72.209	EMISSION MASS/MODE	0.0043766	0.0017486	0.36105	EMISSION MASS/RATED HP	2.7354E-05	1.0929E-05	0.0022565	MODE EMIS./STD. CYCLE %	1.4397	0.72859	5.3727																				
	HC	NOX	CO																																											
EMISSION RATE	0.87532	0.34972	72.209																																											
EMISSION MASS/MODE	0.0043766	0.0017486	0.36105																																											
EMISSION MASS/RATED HP	2.7354E-05	1.0929E-05	0.0022565																																											
MODE EMIS./STD. CYCLE %	1.4397	0.72859	5.3727																																											
CAL. FUEL AIR RATIO = 0.083979			MEAS. FUEL AIR RATIO = 0.083429		DIFF MEAS. & CAL. F/A PERCENT = 0.65921																																									
<table border="1"> <tr> <td>CYL TEMP DEG. F</td> <td>CYL-1</td> <td>CYL-2</td> <td>CYL-3</td> <td>CYL-4</td> </tr> <tr> <td></td> <td>418.90</td> <td>420.31</td> <td>420.42</td> <td>427.40</td> </tr> <tr> <td>EXT GAS TEMP DEG. F</td> <td>EXT-1</td> <td>EXT-2</td> <td>EXT-3</td> <td>EXT-4</td> </tr> <tr> <td></td> <td>678.73</td> <td>-454.00</td> <td>145.73</td> <td>734.47</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>SEXT-1</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>1318.7</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>SEXT-2</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>1316.4</td> </tr> </table>							CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4		418.90	420.31	420.42	427.40	EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4		678.73	-454.00	145.73	734.47					SEXT-1					1318.7					SEXT-2					1316.4
CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4																																										
	418.90	420.31	420.42	427.40																																										
EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4																																										
	678.73	-454.00	145.73	734.47																																										
				SEXT-1																																										
				1318.7																																										
				SEXT-2																																										
				1316.4																																										
ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.381																																										
	188.30	150.23	73.295																																											
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.508																																											
	277.31	2667.0																																												
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2																																										
	100.55	100.44	113.62	95.855																																										
ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW																																										
	90.899	0.12871	48.141	418.93																																										
CELL TEMP. = 79.358		HEATER TEMP = 118.52		COOLER TEMP = 110.69																																										

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NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDEII REC 04/09/76 16:06:40.092 FAC SEX15 PGM C003 RDG 3130

LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 30.3 MCDE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.380 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	98.126	29.381	194.22	820.16	10.404	14.793

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	65.036	5.3870	45.044	68.570	66.670	6.0402

COOLING AIR	TEMP	UNEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	97.936	2.9641	3.8790	9891.3	32.931	64.047

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	32.931	29.111	88.799	2.0391	128.95

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.081289	0.080271	1.2133	2438.5	2440.2	259.95	120.69

WET CORRECTION FACTOR = 0.82528 EXHAUST MOLE. WT. = 27.578 EXHAUST DENSITY = 0.071406 EXHAUST FLOW RATE = 12565.

MEASURED CONC.	PART PER MILLION WET	CO DRY	PER CENT	O2 DRY
	HC PPM	NOX PPM	CO2 DRY	
	1798.0	453.19	8.1587	11.579
			6.7415	9.5560
CORRECTED CONC. TO WET BASIS				0.085729
				0.070750

EMISSION RATE	HC	NOX	CO
	0.81105	0.67763	61.498
EMISSION MASS/MODE	0.067587	0.356469	5.1248
EMISSION MASS/RATED HP	0.00042242	0.00035293	0.032030
MODE EMIS./STD. CYCLE %	22.233	23.529	76.262

CAL. FUEL AIR RATIO = 0.083579 MEAS. FUEL AIR RATIO = 0.081289 DIFF MEAS. & CAL. F/A PERCENT = 2.8176

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	388.75	411.97	436.39	437.79

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	996.24	-454.00	75.295	819.56	1296.9	1295.7

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.083
	187.51	227.41	70.875	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.499
	266.50	2345.9	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	98.255	98.126	66.488	96.366

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	88.430	0.069407	49.365	260.35

CELL TEMP. = 76.404 HEATER TEMP = 115.80 COOLER TEMP = 111.27

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NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDEII REC 04/09/76 16:12:02.068 FAC SEX15 PGM C003 RDG 3131  
 LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 30 % MCDE = 5.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG., BAROMETRIC PRESSURE = 29.380 RATED HP. = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	98.773	29.363	114.34	474.95	5.8144	14.560
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	69.065	5.4947	44.936	41.516	41.239	6.0246
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	99.817	2.9768	3.8417	9915.1	30.693	62.602
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP	
	30.693	16.984	85.694	1.9678	71.176	
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE
	0.086828	0.085778	1.2959	2351.6	2353.0	147.91
						BHP
						66.225
WET CORRECTION FACTOR = 0.84469			EXHAUST MOLE. WT. = 27.151		EXHAUST DENSITY = 0.070301	
					EXHAUST FLOW RATE = 7425.3	
MEASURED CONC.	PART PER MILLION WET		PER CENT		O2 DRY	
	HC PPM	NOX PPM	CO DRY	CO2 DRY	0.10701	
	2064.2	158.40	8.7153	11.141	0.090391	
CORRECTED CONC. TO WET BASIS						
	HC	NOX	CO			
EMISSION RATE	0.55025	0.13996	39.685			
EMISSION MASS/MODE	0.055025	0.013996	3.9685			
EMISSION MASS/RATED HP	0.00034391	8.7475E-05	0.024803			
MODE EMIS./STD. CYCLE %	18.100	5.8317	59.055			
CAL. FUEL AIR RATIO = 0.085023			MEAS. FUEL AIR RATIO = 0.086828		DIFF MEAS. & CAL. F/A PERCENT = -2.0786	
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4		
	345.66	362.38	363.26	355.01		
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1194.4	-454.00	255.12	896.23	1141.3	1141.4
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 19.377		
	187.85	117.41	71.127			
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.403			
	149.67	2313.6				
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2		
	99.119	98.773	77.051	97.114		
ORIFICE AIR	TFMP	DELTAP	ORFP	FLOW		
	89.303	1.1212	52.364	1483.4		
CELL TEMP. = 77.732	HEATER TFMP = 123.81		COOLER TEMP = 108.04			

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NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDEII REC 04/09/76 16:19:46.526 FAC SEX15 PGM C003 RDG 3132

LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 30 % MCDE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.380 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	99.567	29.388	216.88	925.37	11.314	14.913

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	68.180	5.2169	44.960	79.017	77.087	5.8791

COOLING AIR	TEMP	UNEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	100.15	2.9727	3.8765	9907.3	30.654	63.247

RFL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	30.654	19.060	85.585	1.9653	153.66

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.083303	0.082297	1.2433	2688.4	2690.7	274.86	140.70

WET CORRECTION FACTOR = 0.83314 EXHAUST MOLE. WT. = 27.420 EXHAUST DENSITY = 0.070997 EXHAUST FLOW RATE = 14278.

MEASURED CONC.	PART PER MILLION WET			PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY	C2 DRY
	1739.2	197.58	8.3488	11.378	0.064886
CORRECTED CONC. TO WET BASIS			6.9557	9.4797	0.054060

	HC	NOX	CO
EMISSION RATE	0.89152	0.33573	72.106
EMISSION MASS/MODE	0.0044576	0.0016786	0.36053
EMISSION MASS/RATED HP	2.7860E-05	1.0491E-05	0.0022533
MODE FMIS./STD. CYCLE %	1.4663	0.69943	5.3651

CAL. FUEL AIR RATIO = 0.084198 MEAS. FUEL AIR RATIO = 0.083303 DIFF MEAS. & CAL. F/A PERCENT = 1.0019

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	417.63	435.45	420.24	424.09

FXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	616.04	-454.00	248.22	772.19	1314.7	1312.6

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.256
	188.27	149.16	73.231	

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.552
	274.31	2606.6	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	99.654	99.567	84.742	95.532

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	90.454	0.083008	52.489	300.34

CELL TEMP. = 78.801 HEATER TEMP = 123.81 COOLER TEMP = 110.42

NASA-LEWIS		PRELIMINARY DATA		04/09/76	CADDEII	REC 04/09/76 16:23:47.988	FAC SEX15	PGM C003	RDG 3133
LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 30 %				MODE = 4.0000		NO. SCANS = 5			
ENGINE TIMING = 25.000		DEG:		BAROMETRIC PRESSURE = 29.380		RATED HP. = 160.00		HC RATIO = 2.1250	
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL			
	99.912	29.412	192.74	815.66	9.9248	14.782			
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP			
	68.654	5.3828	44.947	67.508	65.872	6.0183			
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT			
	100.21	3.0131	3.7811	998.5	29.929	62.862			
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP				
	29.929	27.699	85.174	1.9559	129.73				
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP		
	0.080758	0.079787	1.2053	2440.1	2441.5	261.14	121.33		
WET CORRECTION FACTOR = 0.82606		EXHAUST MOLE. WT. = 27.620		EXHAUST DENSITY = 0.071515		EXHAUST FLOW RATE = 12465.			
MEASURED CONC.	PART PER MILLION WET		PER CENT						
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY				
	1752.4	513.03	7.9269	11.719	0.10079				
CORRECTED CONC. TO WET BASIS			6.5481	9.6803	0.083259				
EMISSION RATE	HC	NOX	CO						
	0.78420	0.76102	59.260						
EMISSION MASS/MODE	0.065350	0.063418	4.9383						
EMISSION MASS/RATED HP	0.00040844	0.00039636	0.030864						
MODE EMIS./STD. CYCLE %	21.497	26.424	73.487						
CAL. FUEL AIR RATIO = 0.082961		MEAS. FUEL AIR RATIO = 0.080758		DIFF MEAS. & CAL. F/A PERCENT = 2.7283					
CYL TEMP DEG. F.	CYL-1	CYL-2	CYL-3	CYL-4					
	390.59	412.12	439.44	441.28					
EXT GAS TEMP DEG. F.	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2			
	1273.1	-454.00	292.26	879.65	1298.4	1297.3			
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.003					
	187.55	179.49	71.175						
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.492						
	249.43	2372.2							
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2					
	100.01	99.912	88.875	95.215					
ORIFICE AIR	TEMP	DELTAP	ORF	FLOW					
	90.873	0.10391	52.496	357.52					
CFLT TEMP. =	80.126	HEATER TEMP = 112.80		COOLER TEMP = 111.73					

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NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDEII REC 04/09/76 16:26:48.389 FAC SEX15 PGM C003 RDG 3134

LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 30 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.380 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	97.140	29.375	114.29	476.18	5.7721	14.560

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	68.439	5.5055	44.953	44.308	41.212	6.0840

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	97.866	2.8888	3.9169	9749.5	31.942	62.327

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	31.942	19.770	84.852	1.9485	70.868

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.086548	0.085511	1.2918	2356.6	2357.8	147.24	66.068

WET CORRECTION FACTOR = 0.84393 EXHAUST MOLE. WT. = 27.172 EXHAUST DENSITY = 0.070356 EXHAUST FLOW RATE = 7436.0

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM	CO2 DRY
	2023.1	11.220
	NOX PPM	O2 DRY
	162.44	0.11157
	CO DRY	0.094158
	8.6830	
	7.3278	
CORRECTED CONC. TO WET BASIS		

EMISSION RATE	HC	NOX	CO
	0.54007	0.14374	39.559
EMISSION MASS/MODE	0.054007	0.014374	3.9559
EMISSION MASS/RATED HP	0.00033754	8.9835E-05	0.024724
MODE EMIS./STD. CYCLE %	17.765	5.9890	58.868

CAL. FUEL AIR RATIO = 0.084834 MEAS. FUEL AIR RATIO = 0.086548 DIFF MEAS. & CAL. F/A PERCENT = -1.9797

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	352.60	367.62	371.97	370.13

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1089.4	-404.41	338.13	835.36	1165.9	1165.9

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 19.452
	187.83	247.02	71.375	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.385
	144.19	2322.2	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	97.512	97.140	96.716	95.531

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	88.308	1.0818	53.324	1458.8

CELL TEMP. = 77.564 HEATER TEMP = 120.50 COOLER TEMP = 111.70

NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDEIJ REC 04/09/76 16:32:49.244 FAC SEX15 PGM C003 RDG 3135  
 LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 30 % MODE = 3.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.380 RATED HP. = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS. TOTAL	
	99.101	29.405	216.85	923.03	11.157	14.902	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	66.363	5.3096	45.008	75.002	73.186	5.9229	
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	99.266	2.9630	3.8049	9889.2	30.719	62.907	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	30.719	19.992	84.612	1.9430	155.22		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.079289	0.078342	1.1834	2698.4	2700.1	277.04	142.34
WET CORRECTION FACTOR = 0.83066		EXHAUST MOLE. WT. = 27.738		EXHAUST DENSITY = 0.071819		EXHAUST FLOW RATE = 14026.	
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	1442.8	312.47	6.6473	12.394	0.024582		
CORRECTED CONC. TO WET BASIS			5.5217	10.295	0.020420		
EMISSION RATE	HC	NOX	CO				
	0.72655	0.52157	56.229				
EMISSION MASS/MODE	0.0036327	0.0026078	0.28114				
EMISSION MASS/RATED HP	2.2705E-05	1.5299E-05	0.0017571				
MODE EMIS./STD. CYCLE %	1.1950	1.0866	4.1837				
CAL. FUEL AIR RATIO = 0.080327		MEAS. FUEL AIR RATIO = 0.079289		DIFF MEAS. & CAL. F/A PERCENT = 1.3095			
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	431.22	445.02	432.43	438.92			
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	600.79	378.83	349.20	931.55	1358.1	1356.2	
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.491			
	188.44	171.77	72.975				
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.514				
	278.34	2639.5					
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2			
	99.205	99.101	86.632	96.569			
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW			
	88.814	1.0917	53.166	1464.7			
CELL TEMP. =	78.925	HEATER TEMP =	107.47	COOLER TEMP =	111.68		

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NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDE11 REC 04/09/76 16:36:06.631 FAC SEX15 PGM C003 RDG 3136

LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 30 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.380 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	98.679	29.411	190.65	806.45	9.7497	14.777

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	67.518	5.4134	44.978	63.403	61.428	6.3279

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	98.989	3.0244	3.8627	10003.	30.858	62.672

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	30.858	28.127	84.627	1.9433 127.99

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.076171	0.075261	1.1369	2437.0	2439.1	258.32	119.86

WET CORRECTION FACTOR = 0.82116 EXHAUST MOLE. WT. = 27.992 EXHAUST DENSITY = 0.072478 EXHAUST FLOW RATE = 12108.

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT CO2 DRY	O2 DRY
	HC PPM	NOX PPM			
	1530.8	747.97	6.1853	12.666	0.073487
CORRECTED CONC. TO WET BASIS			5.0791	10.401	0.060345

	HC	NOX	CO
EMISSION RATE	0.66543	1.0778	44.651
EMISSION MASS/MODE	0.055453	0.089816	3.7209
EMISSION MASS/PATED HP	0.00034658	0.00056135	0.023256
MODE EMIS./STD. CYCLE %	18.241	37.424	55.371

CAL.FUEL AIR RATIO = 0.079241 MEAS. FUEL AIR RATIO = 0.076171 DIFF MEAS.& CAL. F/A PERCENT = 4.0301

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	401.37	421.79	441.94	442.79

FXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	636.80	-387.82	448.18	1012.1	1332.5	1331.3

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 27.937
	187.64	255.04	71.083	

DYNO COND.	TORQUE	RPM	CYL.BACK PRESSURE = 29.600
	259.13	2365.1	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	98.791	98.679	62.895	95.348

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	89.277	1.0573	53.217	1441.2

CELL TEMP. = 79.278 HEATER TEMP = 109.91 COOLER TEMP = 108.53

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NASA-LE-15 PRELIMINARY DATA 04/09/76 CADDEII REC 04/09/76 16:38:54.223 FAC SEX15 PGM C003 RDG 3137

LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 30 % MCDE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.380 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	98.843	29.381	112.50	468.58	5.6497	14.557

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	70.449	5.5157	44.900	40.582	38.410	6.0867

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	99.861	2.8968	3.8682	9764.7	30.169	62.172

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	30.169	41.036	84.400	1.9381	69.808

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.081971	0.080994	1.2234	2351.3	2352.5	145.08	64.953

WET CORRECTION FACTOR = 0.83788 EXHAUST MOLE. WT. = 27.524 EXHAUST DENSITY = 0.071267 EXHAUST FLOW RATE = 7193.2

MEASURED CONC.	PART PER MILLION WET	PER CENT			
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1847.8	256.06	7.2153	12.016	0.099250
CORRECTED CONC. TO WET BASIS			6.0455	10.068	0.083159

	HC	NOX	CO
EMISSION RATE	0.47716	0.21918	31.571
EMISSION MASS/MODE	0.047716	0.021918	3.1571
EMISSION MASS/RATED HP	0.00029823	0.00013699	0.019732
MCDE EMIS./STD. CYCLE %	15.696	9.1325	46.981

CAL. FUEL AIR RATIO = 0.081551 MEAS. FUEL AIR RATIO = 0.081971 DIFF MEAS. & CAL. F/A PERCENT = -0.51213

CYL TEMP. DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	363.04	375.52	380.17	382.00

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1467.1	-286.98	495.95	937.25	1195.6	1195.9

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE =
	187.85	316.37	70.727	19.280

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE =
	146.34	2313.1	29.460

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	99.188	98.843	42.027	95.637

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	89.722	3.0063	53.203	2378.5

CELL TEMP. = 80.143 HEATER TEMP = 112.25 COOLER TEMP = 107.98

NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDEII REC 04/09/76 16:44:46.353 FAC SEX15 PGM C003 RDG 3138

LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 30 % MCDE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.380 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	101.30	29.410	217.36	924.46	11.210	14.905

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	69.583	5.2640	44.923	74.937	73.114	5.8827

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	101.03	2.9453	3.8754	9856.0	28.850	63.002

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	28.850	1.8802	84.883	1.9492	156.57

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.079089	0.078141	1.1804	2702.8	2704.9	278.39	143.27

WET CORRECTION FACTOR = 0.83097 EXHAUST MOLE WT. = 27.754 EXHAUST DENSITY = 0.071861 EXHAUST FLOW RATE = 14038.

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM NOX PPM CO DRY	CO2 DRY
	1443.0 349.13 6.5988	12.410
CORRECTED CONC. TO WET BASIS		0.078548
		0.065271

EMISSION RATE	HC	NOX	CO
	0.72724	0.58324	55.885
EMISSION MASS/MODE	0.0036362	0.0029162	0.27942
EMISSION MASS/RATED HP	2.2726E-05	1.8226E-05	0.0017464
MODE EMIS./STD. CYCLE %	1.1961	1.2151	4.1581

CAL. FUEL AIR RATIO = 0.080058 MEAS. FUEL AIR RATIO = 0.079089 DIFF MEAS. & CAL. F/A PERCENT = 1.2257

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	418.84	438.09	429.11	433.39

EXT GAS TEMP DEG.F	FXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1143.9	351.86	534.80	1002.7	1350.2	1347.9

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.412
	188.30	156.38	73.571	

DYNO COND.	TORQUE	RPM	CYL BACK PRESSURE = 29.529
	278.57	2623.9	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	101.44	101.30	199.70	97.089

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	90.777	0.071507	53.332	266.22

CFL TEMP. = 80.566 HEATER TEMP = 139.61 COOLER TEMP = 115.98

NASA-LEWIS PPELIMINARY DATA 04/09/76 CADDEII REC 04/09/76 16:48:02.152 FAC SEX15 PGM C003 RDG 3139  
 LEANOUT 25 RTDC TO CL APP 100 DEG HUM = 30 % MCDE = 4.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.380 RATED HP. = 160.00 HC RATIO = 2.1250  
 COMB. AIR TEMP 97.512 PRESS 29.397 CFM 190.96 DRY FLOW 807.47 VAPOR FLOW 9.8091 PRESS TOTAL 14.775  
 COMB. FUEL TEMP 66.972 PRESS 5.4044 DENSITY 44.992 TURBO FLOW 64.426 FLOW TRON 62.370 FPIP 6.0720  
 COOLING AIR TEMP 97.892 UDEL-HOOD 2.9350 DEL-HOOD 3.8018 FLOW 9836.8 REL-HUM 32.116 DEW-POINT 62.802  
 REL-HUM 1 32.116 2 25.441 HUMIDITY 85.035 % H2O VAPOR CORRECTED HP 1.9527 128.89  
 ENG. COND. F/A DRY 0.077242 F/A WET 0.076315 EQU. RATIO 1.1529 RPM-1 2441.0 RPM-2 2442.5 TORQUE 259.98 BHP 120.83  
 WET CORRECTION FACTOR = 0.82638 EXHAUST MOLE. WT. = 27.904 EXHAUST DENSITY = 0.072250 EXHAUST FLOW RATE = 12175.  
 MEASURED CONC. PART PER MILLION WET PER CENT  
 HC PPM 1496.0 NOX PPM 835.06 CO DRY 6.2462 CO2 DRY 12.666 O2 DRY 0.13429  
 CORRECTED CONC. TO WET BASIS CO DRY 5.1617 CO2 DRY 10.467 O2 DRY 0.11098  
 EMISSION RATE HC 0.65390 NOX 1.2099 CO 45.625  
 EMISSION MASS/MODE 0.054492 0.10082 3.8021  
 EMISSION MASS/RATED HP 0.00034057 0.00063014 0.023763  
 MODE. EMIS./STD. CYCLE % 17.925 42.009 56.578  
 CAL. FUEL AIR RATIO = 0.079121 MEAS. FUEL AIR RATIO = 0.077242 DIFF MEAS. & CAL. F/A PERCENT = 2.4331  
 CYL TEMP DEG. F CYL-1 397.18 CYL-2 423.25 CYL-3 441.24 CYL-4 445.38  
 EXT GAS TEMP DEG. F EXT-1 1294.8 EXT-2 1270.12 EXT-3 594.96 EXT-4 1078.5 SEXT-1 1330.6 SEXT-2 1329.3  
 ENGINE OIL EOILT 187.65 SOILT 328.01 OILT 71.063 MANIFOLD PRESSURE = 27.876  
 DYNO COND. TORQUE 266.20 RPM 2386.2 CYL. BACK PRESSURE = 29.514  
 INDUCTION AIR TAIRT1 97.624 TAIRT2 97.512 TAIRT1 167.45 TAIRT2 95.411  
 ORIFICE AIR TEMP 88.325 DELTAP 0.12671 ORFP 53.239 FLOW 415.17  
 CELL TEMP. = 78.695 HEATER TEMP = 119.16 COOLER TEMP = 112.16

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NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDEII REC 04/09/76 16:51:59.434 FAC SEX15 PCM C003 RDG 3140  
 LEANOUT 25 BTDC TO CL APP 100 DEG HUM = .30 % MODE = 5.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.380 RATE HP. = 160.00 HC RATIO = 2.1250  
 COMB. AIR TEMP PRESS CFM DRY FLOW VAPOR FLOW PRESS TOTAL  
 98.376 29.381 112.96 469.44 5.6807 14.559  
 COMB. FUEL TEMP PRESS DENSITY TURBO FLOW FLOW TRON FPIP  
 69.967 5.5196 44.912 40.059 38.689 6.1338  
 COOLING AIR TEMP UDEL-HOOD DEL-HOOD FLOW REL-HUM DEW-POINT  
 99.110 2.9516 3.7542 9868.0 30.711 62.277  
 REL-HUM 1 2 HUMIDITY % H2O VAPOR CORRECTED HP  
 30.711 54.911 84.707 1.9452 70.842  
 ENG. COND. F/A DRY F/A WET EQU. RATIO RPM-1 RPM-2 TORQUE BHP  
 0.082414 0.081429 1.2301 2353.4 2354.6 147.20 65.958  
 WET CORRECTION FACTOR = 0.84102 EXHAUST MOLE. WT. = 27.489 EXHAUST DENSITY = 0.071177 EXHAUST FLOW RATE = 7218.8  
 MEASURED CONC. PART PER MILLION WET PER CENT  
 HC PPM NOX PPM CO DRY CO2 DRY O2 DRY  
 1845.7 294.43 7.0878 12.128 0.1733  
 CORRECTED CONC. TO WET BASIS 5.9610 10.200 0.098678  
 EMISSION RATE HC NOX CO  
 0.47832 0.25293 31.241  
 EMISSION MASS/MODE 0.047832 0.025293 3.1241  
 EMISSION MASS/RATED HP 0.00029895 0.00015808 0.019525  
 MODE EMISSIONS/STD. CYCLE % 15.734 10.539 46.489  
 CAL. FUEL AIR RATIO = 0.081171 MEAS. FUEL AIR RATIO = 0.082414 DIFF MEAS. & CAL. F/A PERCENT = -1.5085  
 CYL TEMP DEG.F CYL-1 CYL-2 CYL-3 CYL-4  
 354.04 369.68 370.78 370.25  
 EXT GAS TEMP DEG.F EXT-1 EXT-2 EXT-3 EXT-4 SEXT-1 SEXT-2  
 762.91 -454.00 710.16 959.71 1181.7 1181.8  
 ENGINE OIL EOILT SOILT OILP MANIFOLD PRESSURE = 19.319  
 198.00 237.85 70.923  
 DYMO COND. TORQUE RPM CYL. BACK PRESSURE = 29.433  
 151.60 2298.1  
 INDUCTION AIR IAIRT1 IAIRT2 TAIRT1 TAIRT2  
 98.722 98.376 85.739 96.901  
 ORIFICE AIR TEMP DELTAP ORFP FLOW  
 88.640 1.0850 53.183 1460.5  
 CELL TEMP. = 78.748 HEATER TEMP = 117.23 COOLER TEMP = 114.13



NASA-LEWIS		PRELIMINARY DATA		04/09/76		CADDEII		REC 04/09/76 17:06:03.087		FAC SEX15		PGM C003		RDG 3141	
LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 30 %								MODE = 3.0000		NO. SCANS = 5					
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 29.370				RATED HP. = 160.00		HC RATIO = 2.1250			
COMB. AIR		TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL								
		100.75	29.346	215.58	917.56	11.011	14.893								
COMB. FUEL		TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP								
		70.101	5.2787	44.909	72.719	70.888	5.9022								
COOLING AIR		TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT								
		101.26	2.9724	3.7675	9906.8	29.007	62.687								
REL-HUM		1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP									
		29.007	9.7650	84.000	1.9289	155.19									
ENG. COND.		F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP							
		0.077257	0.076341	1.1531	2696.1	2697.7	276.14	141.76							
WET CORRECTION FACTOR = 0.82784				EXHAUST MOLE. WT. = 27.903				EXHAUST DENSITY = 0.072246				EXHAUST FLOW RATE = 13833.			
MEASURED CONC.		PART PER MILLION WET			PER CENT										
		HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY									
		1360.0	356.24	5.9955	12.8020	0.057446									
CORRECTED CONC. TO WET BASIS								0.047556							
		HC	NOX	CO											
EMISSION RATE		0.67545		0.58645	49.849										
EMISSION MASS/MODE		0.0033772		0.0029323	0.24924										
EMISSION MASS/RATED HP		2.1108E-05		1.8327E-05	0.0015578										
MODE EMIS./STD. CYCLE %		1.1109		1.2218	3.7090										
CAL. FUEL AIR RATIO = 0.078783				MEAS. FUEL AIR RATIO = 0.077257				DIFF MEAS. & CAL. F/A PERCENT = 1.9749							
CYL TEMP DEG.F		CYL-1	CYL-2	CYL-3	CYL-4										
		446.07	459.93	448.04	460.64										
EXT GAS TEMP DEG.F		EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2								
		767.04	-454.00	843.47	1125.4	1382.2	1380.0								
ENGINE OIL		EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.408										
		188.64	206.83	73.107											
DYNO COND.		TORQUE	RPM	CYL. BACK PRESSURE = 29.531											
		271.20	2642.3												
INDUCTION AIR		IAIPT1	IAIRT2	TAIRT1	TAIRT2										
		100.82	100.75	136.51	96.351										
ORIFICE AIR		TEMP	DELTAP	OREP	FLOW										
		91.108	0.085208	53.174	306.46										
CFLT TEMP. = 81.183				HEATER TEMP = 110.94				COOLER TEMP = 112.24							

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NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDEII REC 04/09/76 17:08:59.707 FAC SEX15 PGM C003 RDG 3142  
 LEANOUT 25 RTDC TO CL APP 100 DEG HUM = 30 % MODE = 4.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.370 RATED HP. = 160.00 HC RATIO = 2.1250  
 COMB. AIR TEMP 97.737 PRESS 29.297 CFM 189.00 DRY FLOW 799.29 VAPOR FLOW 9.5874 PRESS TOTAL 14.771  
 COMB. FUEL TEMP 67.975 PRESS 5.4179 DENSITY 44.965 TURBO FLOW 61.942 FLOW TRON 60.375 FPIP 6.0258  
 COOLING AIR TEMP 98.229 UDEL-HOOD 2.9605 DEL-HOOD 3.8259 FLOW 9884.6 REL-HUM 31.495 DEW-POINT 62.442  
 REL-HUM 1 2 HUMIDITY % H2O VAPOR CORRECTED HP  
 31.495 10.683 83.965 1.9281 128.69  
 ENG. COND. F/A DRY F/A WET EQU. RATIO RPM-1 RPM-2 TORQUE BHP  
 0.075536 0.074641 1.1274 2431.4 2433.6 260.61 120.65  
 WET CORRECTION FACTOR = 0.82595 EXHAUST MOLE. WT. = 28.045 EXHAUST DENSITY = 0.072614 EXHAUST FLOW RATE = 11970.  
 MEASURED CONC. PART PER MILLION WET PER CENT  
 HC PPM NOX PPM CO DRY CO2 DRY O2 DRY  
 1399.2 913.69 5.4520 13.1150 0.12353  
 CORRECTED CONC. TO WET BASIS 4.5231 10.832 0.10203  
 EMISSION RATE HC 0.60132 NOX 1.3016 CO 39.135  
 EMISSION MASS/MODE 0.050110 0.10846 3.2613  
 EMISSION MASS/RATED HP 0.00031319 0.00067790 0.020383  
 MODE EMIS./STD. CYCLE % 16.484 45.193 48.531  
 CAL. FUEL AIR RATIO = 0.077481 MEAS. FUEL AIR RATIO = 0.075536 DIFF MEAS. & CAL. F/A PERCENT = 2.5754  
 CYL TEMP DEG.F CYL-1 406.30 CYL-2 424.21 CYL-3 444.59 CYL-4 448.31  
 EXT GAS TEMP DEG.F EXT-1 683.95 EXT-2 -454.00 EXT-3 774.98 EXT-4 1140.3 SEXT-1 1350.8 SEXT-2 1349.3  
 ENGINE OIL EOILT 187.63 SOILT 252.48 OILP 70.871 MANIFOLD PRESSURE = 27.766  
 DYNO COND. TORQUE 265.71 RPM 2338.3 CYL. RACK PRESSURE = 29.463  
 INDUCTION AIR IAIRT1 97.884 IAIRT2 97.737 TAIRT1 60.508 TAIRT2 95.321  
 ORIFICE AIR TEMP 89.163 DELTAP 0.11801 ORFP 53.356 FLOW 393.83  
 CELL TEMP. = 79.209 HEATER TEMP = 112.50 COOLER TEMP = 111.06

NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDEII REC 04/09/76 17:12:34.069 FAC SEX15 PGM C003 RDG 3143  
 LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 30 % MCDE = 5.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.370 RATED HP = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	97.858	29.364	112.57	468.25	5.5962	14.555
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	70.413	5.5202	44.901	38.359	37.240	6.0402
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	98.368	2.9275	3.8538	9822.7	30.809	61.922
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP	
	30.809	36.426	83.658	1.9211	69.569	
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE
	0.079529	0.078590	1.1870	2351.1	2353.3	144.78
						BHP
						64.812
WET CORRECTION FACTOR = 0.83578			EXHAUST MOLE. WT. = 27.718		EXHAUST DENSITY = 0.071769	
			EXHAUST FLOW RATE = 7121.3			
MEASURED CONC.	PART PER MILLION WET		PER CENT			
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	1714.0	358.58	6.3047	12.5760	0.11481	
CORRECTED CONC. TO WET BASIS			5.2693	10.511	0.095957	
EMISSION RATE	HC	NOX	CO			
	0.43818	0.30387	27.242			
EMISSION MASS/MODE	0.043818	0.030387	2.7242			
EMISSION MASS/RATED HP	0.00027386	0.00018992	0.017027			
MODE EMIS./STD. CYCLE %	14.414	12.661	40.539			
CAL. FUEL AIR RATIO = 0.079452			MEAS. FUEL AIR RATIO = 0.079529		DIFF MEAS. & CAL. F/A PERCENT = -0.096307	
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4		
	363.84	374.47	376.17	379.09		
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1133.8	-454.00	867.51	1027.2	1206.2	1206.5
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 19.282		
	188.06	217.79	70.519			
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.379			
	149.62	2317.3				
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2		
	98.221	97.858	79.968	96.347		
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW		
	88.989	1.0416	53.201	1431.0		
CELL TEMP. = 78.430	HEATER TEMP = 131.14		COOLER TEMP = 113.65			

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NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDEII REC 04/09/76 17:18:08.072 FAC SEX15 PGM C003 RDG 3144  
 LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 30 % MCDE = 3.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.370 RATE HP. = 160.00 HC RATIO = 2.1250  
 COMB. AIR TEMP 98.877 PRESS 29.409 CFM 216.25 DRY FLOW 921.90 VAPOR FLOW 10.985 PRESS TOTAL 14.899  
 COMB. FUEL TEMP 63.636 PRESS 5.1935 DENSITY 44.948 TURBO FLOW 72.987 FLOW TRON 70.849 FPIP 5.8593  
 COOLING AIR TEMP 99.498 UDEL-HOOD 2.9441 DEL-HOOD 3.9203 FLOW 9853.9 REL-HUM 30.490 DEW-POINT 62.502  
 REL-HUM 1 2 HUMIDITY ? H2O VAPOR CORRECTED HP  
 30.490 0.25403 83.411 1.9154 154.76  
 ENG. COND. F/A DRY F/A WET EQU. RATIO RPM-1 RPM-2 TORQUE BHP  
 0.076851 0.075946 1.1470 2699.7 2701.7 276.28 142.01  
 WET CORRECTION FACTOR = 0.82701 EXHAUST MOLE. WT. = 27.936 EXHAUST DENSITY = 0.072333 EXHAUST FLOW RATE = 13876.  
 MEASURED CONC. PART PER MILLION WET PER CENT  
 HC PPM NOX PPM CO DRY CO2 DRY O2 DRY  
 1345.6 398.62 5.9248 12.8190 0.065687  
 CORRECTED CONC. TO WET BASIS 4.8999 10.602 0.055150  
 EMISSION RATE HC NOX CO  
 0.67035 0.55825 49.363  
 EMISSION MASS/MODE 0.0033518 0.0032912 0.24682  
 EMISSION MASS/RATED HP 2.0949E-05 2.0570E-05 0.0015426  
 MODE EMIS./STD. CYCLE % 1.1026 1.3713 3.6729  
 CAL. FUEL AIR RATIO = 0.078619 MEAS. FUEL AIR RATIO = 0.076851 DIFF MEAS. & CAL. F/A PERCENT = 2.3001  
 CYL TEMP DEG.F CYL-1 CYL-2 CYL-3 CYL-4  
 435.07 449.19 442.25 448.72  
 EXT GAS TEMP DEG.F EXT-1 EXT-2 EXT-3 EXT-4 SEXT-1 SEXT-2  
 888.12 -437.02 866.54 1153.1 1378.3 1378.1  
 ENGINE OIL EOILT SOILT OILP MANIFOLD PRESSURE = 28.429  
 188.50 138.78 73.407  
 DYND COND. TORQUE RPM CYL. BACK PRESSURE = 29.511  
 278.09 2619.7  
 INDUCTION AIR IAIRT1 IAIRT2 TAIRT1 TAIRT2  
 98.963 98.877 80.187 95.728  
 ORIFICE AIR TEMP DELTAP DRFP FLOW  
 89.958 1.0627 53.223 1443.9  
 CFLL TEMP. = 79.825 HEATER TEMP = 115.73 COOLER TEMP = 109.70

NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDEII REC 04/09/76 17:21:37.179 FAC SEX15 PGM C003 RDG 3145

LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 30 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.370 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	99.662	29.242	189.33	799.94	9.5513	14.778

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	69.369	5.4161	44.928	62.148	59.958	5.9958

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	99.938	3.0172	3.9228	9990.2	29.592	62.327

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	29.592	18.062	83.580	1.9193	128.10

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.074953	0.074069	1.1187	2430.6	2431.6	259.01	119.87

WET CORRECTION FACTOR = 0.82335 EXHAUST MOLE. WT. = 28.093 EXHAUST DENSITY = 0.072740 EXHAUST FLOW RATE = 11952.

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM NOX PPM CO DRY	CO2 DRY
	1384.0 950.19 5.4610	13.0740
CORRECTED CONC. TO WET BASIS		10.764

EMISSION RATE	HC	NOX	CO
	0.59390	1.3515	39.018
EMISSION MASS/MODE	0.049491	0.11263	3.2515
EMISSION MASS/RATED HP	0.00030932	0.00070392	0.020322
MODE EMTS./STD. CYCLE %	16.280	46.928	48.385

CAL. FUEL AIR RATIO = 0.077531 MEAS. FUEL AIR RATIO = 0.074953 DIFF MEAS. & CAL. F/A PERCENT = 3.4396

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	406.45	423.80	443.98	446.25

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1106.8	-454.00	750.26	1179.6	1351.3	1350.4

ENGINE OIL	EQILT	SOILT	OILP	MANIFOLD PRESSURE = 27.981
	187.52	190.23	71.015	

DYNO COND.	TORQUE	RPM	CYL. RACK PRESSURE = 29.349
	239.91	2342.1	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	99.766	99.662	86.643	96.156

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	90.524	1.0375	53.185	1426.2

CELL TEMP. = 80.989 HEATER TEMP = 105.42 COOLER TEMP = 110.09

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NASA-Lewis PRELIMINARY DATA 04/09/76 CADDEIT REC 04/09/76 17:25:05.713 FAC SEX15 PGM C003 RDG 3146  
 LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 30 % MODE = 5.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.370 RATED HP. = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	99.291	29.374	113.14	471.25	5.6465	14.554
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	72.391	5.5289	44.848	39.699	37.927	6.1491
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	100.32	2.9259	3.8292	9819.6	29.573	61.992
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP	
	29.573	43.118	83.874	1.9260	70.172	
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE
	0.080481	0.079528	1.2012	2354.0	2356.3	145.62
						BHP
						65.269
WET CORRECTION FACTOR = 0.83980			EXHAUST MOLE. WT. = 27.642		EXHAUST DENSITY = 0.071572	
			EXHAUST FLOW RATE = 7193.1			
MEASURED CONC.	PART PER MILLION WET		PER CENT			
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	1640.4	371.81	6.3123	12.5900	0.098970	
CORRECTED CONC. TO WET BASIS			5.3011	10.573	0.083115	
EMISSION RATE	HC	NOX	CO			
	0.42359	0.31826	27.683			
EMISSION MASS/MODE	0.042359	0.031826	2.7683			
EMISSION MASS/RATED HP	0.00026475	0.00019891	0.017302			
MODE FMIS./STD. CYCLE %	13.934	13.261	41.195			
CAL. FUEL AIR RATIO = 0.079464			MEAS. FUEL AIR RATIO = 0.080481		DIFF MEAS. & CAL. F/A PERCENT = -1.2644	
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4		
	364.95	376.26	377.60	377.96		
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1209.5	-454.00	894.46	1005.8	1205.9	1206.2
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 19.354		
	187.98	270.21	70.487			
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.457			
	150.29	2322.8				
INDUCTION AIR	IAIRT1	IAIPT2	TAIRT1	TAIRT2		
	99.654	99.291	92.968	95.561		
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW		
	91.177	2.0459	53.323	1980.7		
CELL TEMP. = 81.069	HEATER TEMP = 113.08		COOLER TEMP = 108.28			

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NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDELL REC 04/09/76 17:31:03.390 FAC SEX15 PGM C003 RDG 3147

LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 30 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.370 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	98.402	29.337	215.31	915.99	11.035	14.888

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	68.386	5.3756	44.954	67.370	65.506	5.9679

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	98.756	3.0014	3.9211	9961.0	31.243	62.787

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	31.243	19.810	84.333	1.9366 154.17

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.071513	0.070662	1.0674	2688.9	2690.2	275.60	141.10

WET CORRECTION FACTOR = 0.82431 EXHAUST MOLE. WT. = 28.385 EXHAUST DENSITY = 0.073496 EXHAUST FLOW RATE = 13504.

MEASURED CONC.	PART PER MILLION WFT			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	1107.0	921.19	3.5864	14.1570	0.10621	
CORRECTED CONC. TO WET BASIS			2.9563	11.670	0.087550	

	HC	NOX	CO
EMISSION RATE	0.53669	1.4804	28.984
EMISSION MASS/MODE	0.0026835	0.0074019	0.14492
EMISSION MASS/RATED HP	1.6772E-05	4.6262E-05	0.00090575
MODE EMIS./STD. CYCLE %	0.88271	3.0841	2.1565

CAL. FUEL AIR RATIO = 0.073736 MEAS. FUEL AIR RATIO = 0.071513 DIFF MEAS. & CAL. F/A PERCENT = 3.1084

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	440.45	453.22	447.18	451.86

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1168.0	47.497	1156.8	1263.6	1415.5	1412.9

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.476
	188.47	194.29	73.263	

DYNO COND.	TORQUE	RPM	CYL. RACK PRESSURE = 29.548
	269.38	2628.9	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	98.515	98.402	78.445	96.353

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	89.382	0.067907	53.233	255.49

CELL TEMP. = 79.128 HEATER TEMP = 119.40 COOLER TEMP = 111.87

b1h



NASA-Lewis PRELIMINARY DATA 04/09/76 CADDELL REC 04/09/76 17:37:10.903 FAC SEX15 PGM C003 RDG 3149  
 LEANOUT 25 RTDC TO CL APP 100 DEG HUM = 30 % MODE = 5.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.370 RATED HP. = 160.00 HC RATIO = 2.1250  
 COMB. AIR TEMP 97.737 PRESS 29.372 CFM 114.36 DRY FLOW 476.43 VAPOR FLOW 5.7160 PRESS TOTAL 14.553  
 COMB. FUEL TEMP 71.607 PRESS 5.5463 DENSITY 44.869 TURBO FLOW 37.258 FLOW TRON 34.629 FPIP 6.0717  
 COOLING AIR TEMP 98.817 UDEL-HOOD 2.8974 DEL-HOOD 3.8461 FLOW 9765.7 REL-HUM 31.038 DEW-POINT 62.027  
 REL-HUM 1 31.038 2 13.877 HUMIDITY 83.984 % H2O VAPOR 1.9286 CORRECTED HP 70.216  
 ENG. COND. F/A DRY 0.072685 F/A WET 0.071824 EQU. RATIO 1.0849 RPM-1 2357.5 RPM-2 2359.6 TORQUE 145.75 BHP 65.423  
 WET CORRECTION FACTOR = 0.83284 EXHAUST MOLE. WT. = 28.285 EXHAUST DENSITY = 0.073236 EXHAUST FLOW RATE = 7056.3  
 MEASURED CONC. PART PER MILLION WET HC PPM 1199.0 NOX PPM 757.88 CO DRY 3.4995 CO2 DRY 14.1410 O2 DRY 0.22384  
 CORRECTED CONC. TO WET BASIS 2.9145 11.777 0.18642  
 EMISSION RATE HC 0.30373 NOX 0.53638 CO 14.931  
 EMISSION MASS/MODE 0.030373 0.063638 1.4930  
 EMISSION MASS/RATED HP 0.00018983 0.00039774 0.0093316  
 MODE EMIS./STD. CYCLE % 9.9913 26.516 22.218  
 CAL. FUEL AIR RATIO = 0.073290 MEAS. FUEL AIR RATIO = 0.072686 DIFF MEAS. & CAL. F/A PERCENT = 0.83192  
 CYL TEMP DEG. F. CYL-1 373.16 CYL-2 384.72 CYL-3 387.73 CYL-4 389.11  
 EXT GAS TEMP DEG. F. EXT-1 1597.8 EXT-2 -339.26 EXT-3 1141.1 EXT-4 1111.9 SEXT-1 1266.0 SEXT-2 1266.5  
 ENGINE OIL EOILT 188.01 SOILT 214.36 OILP 70.719 MANIFOLD PRESSURE = 19.661  
 DYNO COND. TORQUE 139.90 RPM 2333.6 CYL. BACK PRESSURE = 29.394  
 INDUCTION AIR IAIRT1 98.091 IAIRT2 97.737 TAIRT1 78.365 TAIRT2 95.409  
 CRITICF. AIR TEMP 89.931 DELTAP 1.0636 ORFP 53.229 FLOW 1444.5  
 CELL TEMP. = 80.027 HEATER TEMP = 121.95 COOLER TEMP = 109.18

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NASA-LEWIS PRELIMINARY DATA 04/09/76 CANDELL REC 04/09/76 17:41:35.429 FAC SEX15 PGM C003 RDG 3150

LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 30 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.370 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	99.102	29.389	215.80	919.71	11.133	14.897

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	70.529	5.3624	44.897	67.938	66.073	5.9613

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	99.990	2.9790	3.9056	9919.2	30.751	62.937

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	32.751	11.891	84.731	1.9457	154.71

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.071841	0.070982	1.0723	2695.5	2697.4	276.24	141.77

WET CORRECTION FACTOR = 0.82692 EXHAUST MOLE. WT. = 28.357 EXHAUST DENSITY = 0.073423 EXHAUST FLOW RATE = 13577.

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	1129.3	1033.7	3.5074	14.2120	0.12687
CORRECTED CONC. TO WET BASIS			2.9003	11.752	0.10491

	HC	NOX	CO
EMISSION RATE	0.55047	1.5702	28.589
EMISSION MASS/MODE	0.0027523	0.0083509	0.14295
EMISSION MASS/RATED HP	1.7202E-05	5.2193E-05	0.00089341
MODE EMIS./STD. CYCLE %	0.90537	3.4796	2.1272

CAL. FUEL AIR RATIO = 0.073530 MEAS. FUEL AIR RATIO = 0.071841 DIFF MEAS. & CAL. F/A PERCENT = 2.3506

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	428.68	443.69	437.70	436.42

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1246.3	72.898	1148.0	1292.2	1415.3	1412.6

ENGINE OIL	EOILT	SOILT	OILP	MANTIFOLD PRESSURE
	188.37	227.70	73.363	28.419

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	270.70	2599.5	29.523

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	99.179	99.102	87.111	95.669

COPIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	90.629	2.0758	53.226	1995.3

CELL TEMP. = 79.605 HEATER TEMP. = 116.25 COOLER TEMP. = 108.04

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NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDELI REC 04/09/76 17:45:16.282 FAC SEX15 PGM C003 RDG 3151

LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 30 % MCDE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.370 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	99.869	29.320	195.46	826.67	9.9658	14.792

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	70.841	5.4335	44.889	59.783	57.990	6.0654

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	100.32	2.9533	3.8796	9871.1	29.715	62.622

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	29.715	18.928	84.388	1.9378	130.30

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.070148	0.069313	1.0470	2442.7	2444.2	262.05	121.88

WET CORRECTION FACTOR = 0.82036 EXHAUST MOLE. WT. = 28.503 EXHAUST DENSITY = 0.073802 EXHAUST FLOW RATE = 12121.

MEASURED CONC.	PART PER MILLION WET	HC PPM	NOX PPM	CO DRY	PER CENT	CO2 DRY	O2 DRY
	1010.4	1503.9	3.6586	14.0420	0.29653	0.24326	

CORRECTED CONC. TO WET BASIS

EMISSION RATE	HC	NOX	CO
	0.43970	2.1695	26.413
EMISSION MASS/MODE	0.036642	0.18079	2.2011
EMISSION MASS/RATED HP	0.00022901	0.0011299	0.013757
MODE EMIS./STD. CYCLE %	12.051	75.328	32.755

CAL. FUEL AIR RATIO = 0.073298 MEAS. FUEL AIR RATIO = 0.070148 DIFF MEAS. & CAL. F/A PERCENT = 4.6892

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	420.80	439.35	441.31	442.32

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	682.12	-454.00	861.24	1191.4	1397.1	1395.6

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	187.57	177.21	71.043	28.250

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	263.81	2383.0	29.459

INDUCTION AIR	TAIRT1	TAIPT2	TAIRT1	TAIRT2
	99.964	99.869	69.354	96.032

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	91.186	1.0475	53.201	1432.1

CELL TEMP. = 81.465 HEATER TEMP. = 106.33 COOLER TEMP. = 110.33

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NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDELL REC 04/09/76 17:48:14.933 FAC SEX15 PGM C003 RDG 3152  
 LEANCUT 25 BTDC TO CL APP 100 DEG HUM = 30 % MODE = 5.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.370 RATED HP = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	99.559	29.379	114.38	476.40	5.7211	14.555	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	73.751	5.5457	44.812	37.457	35.488	6.1089	
COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	130.87	2.8921	3.8082	9755.8	29.403	62.057	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	29.403	0.68807	84.064	1.9304	69.691		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.074491	0.073607	1.1118	2355.9	2357.2	144.45	64.795
WET CORRECTION FACTOR = 0.84188			EXHAUST MOLE. WT. = 28.132		EXHAUST DENSITY = 0.072840		EXHAUST FLOW RATE = 7106.0
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	1210.5	749.37	3.5183	14.1400	0.25407		
CORRECTED CONC. TO WET BASIS			2.9520	11.904	0.21389		
EMISSION RATE	HC	NOX	CO				
	0.30881	0.63368	15.281				
EMISSION MASS/MODE	0.030881	0.063368	1.5281				
EMISSION MASS/RATED HP	0.00019301	0.00039605	0.0095506				
MODE EMIS./STD. CYCLE %	10.158	26.403	22.740				
CAL. FUEL AIR RATIO = 0.073233			MEAS. FUEL AIR RATIO = 0.074491		DIFF MEAS. & CAL. F/A PERCENT = -1.5898		
CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4			
	380.07	385.07	392.51	390.10			
EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	1448.4	187.11	1243.6	1179.7	1265.4	1265.6	
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 19.685			
	188.11	208.43	70.751				
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.441				
	143.83	2307.0					
INDUCTION AIR	TAIPT1	TAIPT2	TAIRT1	TAIRT2			
	99.869	99.559	80.882	95.627			
ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW			
	91.630	1.0585	53.237	1438.9			
CELL TEMP. = 80.505		HEATER TEMP = 112.23		COOLER TEMP = 106.67			

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NASA-Lewis PPELIMINARY DATA 04/09/76 CADDELL REC 04/09/76 17:51:29.409 FAC SEX15 PGM C003 RDG 3153  
 LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 30 % MCDE = 4.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.370 RATED HP. = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	100.36	29.363	194.64	822.29	9.9139	14.778
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	71.848	5.4266	44.862	59.591	57.765	6.0102
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	100.64	2.9461	3.8312	9857.6	29.254	62.597
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP	
	29.254	11.373	84.394	1.9380	128.41	
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE
	0.070248	0.069411	1.0485	2435.3	2437.4	258.88
						BHP
						120.04
WET CORRECTION FACTOR = 0.82330			EXHAUST MOLE. WT. = 28.495		EXHAUST DENSITY = 0.073780	
			EXHAUST FLOW RATE = 12062.			
MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	956.09	1561.2	3.5909	13.991	0.36620	
CORRECTED CONC. TO WET BASIS			2.9564	11.519	0.30149	
	HC	NOX	CO			
EMISSION RATE	0.41403	2.2409	25.891			
EMISSION MASS/MODE	0.034503	0.18675	2.1575			
EMISSION MASS/PATED HP	0.00021564	0.0011672	0.013485			
MODE EMIS./STD. CYCLE %	11.350	77.810	32.106			
CAL. FUEL AIR RATIO = 0.072971			MEAS. FUEL AIR RATIO = 0.070248		DIFF MEAS. & CAL. F/A PERCENT = 3.8755	
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4		
	411.99	429.72	427.49	425.72		
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	864.09	454.00	843.38	1239.1	1383.0	1381.0
ENGINE OIL	EQILT	SOILT	OILP	MANIFOLD PRESSURE = 28.123		
	197.78	223.55	71.191			
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.479			
	258.62	2368.1				
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2		
	100.46	100.36	114.87	96.113		
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW		
	91.578	0.068107	53.273	255.60		
CELL TEMP. = 81.474	HEATER TEMP = 118.92		COOLER TEMP = 112.35			

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NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDEII REC 04/09/76 18:25:13.304 FAC SEX15 PGM C003 RDG 3154

LEANOUT 25 BTDC I & T 100 DEG HUM = 30 ± 1 1/2 T CLO MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.360 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	94.238	29.351	11.907	49.426	0.60740	14.425

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	76.776	5.8116	44.732	3.9689	3.5854	6.1683

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	95.088	-0.049540	0.83941	0.00000	35.266	62.612

PFL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	35.266	30.047	86.549	1.9875	0.10444

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.072983	0.072091	1.0893	617.58	617.70	0.84175	0.098981

WET CORRECTION FACTOR = 0.85909 EXHAUST MOL. WT. = 28.259 EXHAUST DENSITY = 0.073171 EXHAUST FLOW RATE = 728.69

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	15730.	23.932	2.5958	12.6800	2.9477
CORRECTED CONC. TO WET BASIS			2.2300	10.893	2.5323

	HC	NOX	CO
EMISSION RATE	0.41151	0.0020753	1.1797
EMISSION MASS/MODE	0.0068585	3.4588E-05	0.019662
EMISSION MASS/RATED HP	4.2866E-05	2.1617E-07	0.00012289
MODE EMIS./STD. CYCLE %	2.2561	0.014412	0.29259

CAL. FUEL AIR RATIO = 0.071291 MEAS. FUEL AIR RATIO = 0.072983 DIFF MEAS. & CAL. F/A PERCENT = -2.3187

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	221.33	256.38	242.68	246.81

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1398.6	-454.00	-454.00	350.27	440.11	434.34

ENGINE OIL	OILT	SOILT	OILP	MANIFOLD PPRESSURE
	144.12	243.47	47.833	11.658

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	4.2052	605.04	29.494

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	95.521	94.238	165.95	95.539

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	89.268	1.0478	53.225	1448.2

CELL TEMP. = 76.183 HEATER TEMP = 171.69 COOLER TEMP = 119.84

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NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDELL REC 04/09/76 18:31:28.384 FAC SEX15 PGM C003 RDG 3155

LEANOUT 25 BTDC I & T 100 DEG HUM = 30 % 1 1/2 T CLO MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.360 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	99.171	29.363	19.713	80.282	0.99895	14.426

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	76.696	5.7591	44.735	7.4023	6.3486	6.1326

COOLING AIR	TEMP	UDEL-HOOD	DFL-HOOD	FLOW	REL-HUM	DEW-POINT
	98.687	-0.064208	0.81560	0.00000	30.531	62.792

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	30.531	15.832	87.101	2.0001	1.7491

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.079079	0.078107	1.1903	1198.2	1199.9	7.2340	1.6504

WET CORRECTION FACTOR = 0.83570 EXHAUST MOLE WT. = 27.754 EXHAUST DENSITY = 0.071863 EXHAUST FLOW RATE = 1219.4

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	2667.3	47.761	5.7988	12.9340	0.17080
CORRECTED CONC. TO WET BASIS			4.8461	10.809	0.14273

	HC	NOX	CO
EMISSION RATE	0.11676	0.0069305	4.2902
EMISSION MASS/MODE	0.021407	0.0012706	0.78653
EMISSION MASS/RATED HP	0.00013379	7.9412E-06	0.0049158
MODE EMIS./STD. CYCLE %	7.0417	0.52941	11.704

CAL. FUEL AIR RATIO = 0.078644 MEAS. FUEL AIR RATIO = 0.079079 DIFF MEAS. & CAL. F/A PERCENT = -0.54955

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	280.79	292.20	284.33	283.49

EXT GAS TEMP DEG. F	FXT-1	FXT-2	FXT-3	EXT-4	SEXT-1	SEXT-2
	1735.4	-390.54	-454.00	318.40	417.41	412.56

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE
	144.00	295.86	57.258	8.0536

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	8.0216	1198.1	29.547

INDUCTION AIR	IAIPT1	IAIPT2	TAIRT1	TAIRT2
	100.27	99.171	107.22	102.79

ORIFICE AIR	TEMP	DELTA P	DPFD	FLOW
	89.914	1.0948	53.187	1465.3

CELL TEMP. = 77.502 HEATER TEMP = 152.40 COOLER TEMP = 118.61

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NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDEIT REC 04/09/76 18:31:51.650 FAC SEX15 PGM C003 RDG 3156

LEANOUT 25 BTDC J & T 100 DEG HUM = 30 % 1 1/2 T CLO MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BARMETRIC PRESSURE = 29.360 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	98.411	29.360	20.159	82.597	1.0259	14.427

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	76.679	5.7567	44.735	7.3475	6.3156	6.1485

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	98.825	-0.054521	0.85269	0.00000	31.186	62.742

PEI-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	31.186	18.096	86.939	1.9964	1.4930

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.076463	0.075525	1.1412	1199.0	1198.8	6.1756	1.4098

WET CORRECTION FACTOR = 0.82306 EXHAUST MOLE. WT. = 27.958 EXHAUST DENSITY = 0.072416 EXHAUST FLOW RATE = 1242.0

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	NOX PPM	CO DRY
2577.5	48.483	5.8475
		12.8980
		0.15314
CORRECTED CONC. TO WET BASIS		4.8128
		10.616
		0.12604

EMISSION RATE	HC	NOX	CO
	0.11492	0.0071655	4.3396
EMISSION MASS/MODE	0.0057461	0.00035828	0.21698
EMISSION MASS/RATED HP	3.5913E-05	2.2392E-06	0.0013561
MODE EMIS./STD. CYCLE %	1.8901	0.14928	3.2289

CAL. FUEL AIR RATIO = 0.078782 MEAS. FUEL AIR RATIO = 0.076463 DIFF MEAS. & CAL. F/A PERCENT = 3.0324

CYL TEMP. DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	281.99	293.51	285.23	284.59

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1089.2	388.32	454.00	320.51	415.69	412.02

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	144.00	-16.753	57.258	8.0747

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	3.0675	1189.4	29.358

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	99.455	98.411	105.74	99.456

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	89.966	2.0684	53.160	1993.1

CELL TEMP. = 77.608 HEATER TEMP = 141.93 COOLER TEMP = 97.085

427

NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDEII REC 04/09/76 18:38:45.036 FAC SEX15 PGM C003 RDG 3157

LEANDUT 25 BTDC I & T 100 DEG HUM = 30 % 1 1/2 T CLO MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BARMETRIC PRESSURE = 29.360 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	96.465	29.359	12.301	50.071	0.62104	14.421

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	74.915	5.8101	44.781	3.9732	3.4893	6.1428

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	97.417	-0.045942	0.86072	0.00000	33.029	62.692

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	33.029	48.047	86.823	1.9937

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.069688	0.068834	1.0401	622.32	621.36	1.7252	0.20442

WET CORRECTION FACTOR = 0.84390 EXHAUST MOLE. WT. = 28.471 EXHAUST DENSITY = 0.073719 EXHAUST FLOW RATE = 734.97

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	13736.	25.975	2.4820	12.9020	2.7816	
CORRECTED CONC. TO WET BASIS			2.0946	10.888	2.3474	

	HC	NOX	CO
EMISSION RATE	0.36244	0.0022718	1.1176
EMISSION MASS/MODE	0.0060406	3.7863E-05	0.018627
EMISSION MASS/PATED HP	3.7754E-05	2.3664E-07	0.00011642
MODE EMISS./STD. CYCLE %	1.9870	0.015776	0.27719

CAL. FUEL AIR RATIO = 0.070666 MEAS. FUEL AIR RATIO = 0.069688 DIFF MEAS. & CAL. F/A PERCENT = 1.4042

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	238.82	267.98	254.09	258.07

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1642.5	-378.99	-454.00	286.29	359.97	357.22

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 11.417
	141.10	241.67	48.105	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.280
	6.5670	620.94	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	97.780	96.465	93.566	102.97

ORIFICE AIR	TEMP	DELTAP	CRFP	FLOW
	87.346	0.096410	53.183	338.67

CELL TEMP. = 75.119 HEAT FR TEMP = 158.07 COOLER TEMP = 136.83

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NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDELL REC 04/09/76 18:48:24.887 EAC SEX15 PGM C003 RDG 3158

LEANOUT 25 BTDC I & T 100 DEG HUM = 30 % 3/4 T CLOSE MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.360 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	99.619	29.363	11.481	46.834	0.58310	14.420

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	75.527	5.7951	55.755	3.9735	3.9604	6.1561

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	100.98	-0.052030	0.88950	0.00000	30.126	62.797

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	30.126	15.298	87.153	2.0013	0.77197

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.084562	0.083522	1.2621	617.34	620.10	6.1923	0.72787

WET CORRECTION FACTOR = 0.83583 EXHAUST MOLE. WT. = 27.323 EXHAUST DENSITY = 0.070746 EXHAUST FLOW RATE = 726.23

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	18518.	14.615	7.7230	10.5390	1.7479
CORRECTED CONC. TO WET BASIS			6.4552	8.8085	1.4609

	HC	NOX	CO
EMISSION RATE	0.48281	0.0012631	3.4034
EMISSION MASS/MODE	0.0080469	2.1051E-05	0.056724
EMISSION MASS/RATED HP	5.0293E-05	1.3157E-07	0.00035452
MODE EMIS./STD. CYCLE %	2.6470	0.0087714	0.84410

CAL. FUEL AIR RATIO = 0.086925 MEAS. FUEL AIR RATIO = 0.084562 DIFF MEAS. & CAL. F/A PERCENT = 2.6765

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	281.65	293.40	281.99	293.63

EXT GAS TEMP DEG.F	FXT-1	FXT-2	EXT-3	FXT-4	SEXT-1	SEXT-2
	772.05	-336.30	-454.00	279.00	496.04	495.60

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE
	147.58	266.73	47.157	10.904

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	5.1197	611.46	29.051

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	101.09	99.619	64.918	101.65

ORIFICE AIR	TEMP	DELTA P	ORF P	FLOW
	88.500	0.093309	53.236	329.86

CELL TEMP. = 76.493 HEATER TEMP = 143.61 COOLER TEMP = 96.301

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NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDELL REC 04/09/76 18:51:52.422 FAC SEX15 PGM C003 RDG 3159

LEANOUT 25 BTDC I & T 100 DEG HUM = 30 % 3/4 T CLOSE MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.360 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	102.53	29.354	21.249	86.113	1.0746	14.421

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	76.625	5.7291	44.736	9.0635	7.6448	6.1368

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	101.26	-0.049816	0.86570	0.00000	27.672	62.862

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	27.672	11.555	87.349	2.0058	1.9951

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.088776	0.087681	1.3250	1201.8	1203.2	8.2008	1.8766

WET CORRECTION FACTOR = 0.83718 EXHAUST MOLE. WT. = 27.006 EXHAUST DENSITY = 0.069926 EXHAUST FLOW RATE = 1356.2

MEASURED CONC.	PART PER MILLION WET		PER CENT		CO DRY
	HC PPM	NOX PPM	CO DRY	CO2 DRY	
	6487.6	28.451	9.7126	10.5380	0.28185
CORRECTED CONC. TO WET BASIS			8.1312	8.8222	0.23596

	HC	NOX	CO
EMISSION RATE	0.31586	0.0045915	8.0058
EMISSION MASS/MODE	0.057908	0.00084178	1.4677
EMISSION MASS/RATED HP	0.00036193	5.2611E-06	0.0091734
MODE EMIS./STD. CYCLE %	19.049	0.35074	21.841

CAL. FUEL AIR RATIO = 0.089066 MEAS. FUEL AIR RATIO = 0.088776 DIFF MEAS. & CAL. F/A PERCENT = 0.32738

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	270.32	281.21	267.98	264.17

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1342.0	-454.00	-454.00	261.11	461.89	460.07

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	144.57	370.15	56.286	8.3476

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	12.652	1197.4	29.377

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	103.76	102.53	108.99	105.35

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	88.919	2.0521	53.199	1987.6

CILL TEMP. = 76.927 HEATER TEMP = 154.21 COOLER TEMP = 127.62

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NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDEII REC. 04/09/76 18:52:15.694 FAC SEX15 PGM C003 RDG 3160  
 LEANOUT 25 BTDC I & T 100 DEG HUM = 30 % 3/4 T CLOSE MCDE = 6.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.360 RATED HP. = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	101.82	29.369	21.321	86.872	1.0839	14.424	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	76.590	5.7291	44.737	9.0311	7.6298	6.1320	
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	101.31	-0.048156	0.93904	0.00000	28.260	62.862	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	28.260	11.893	87.335	2.0055	1.1924		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.087827	0.086745	1.3109	1202.8	1203.4	4.9005	1.1223
WET CORRECTION FACTOR = 0.83401		EXHAUST MOLE. WT. = 27.077		EXHAUST DENSITY = 0.070108		EXHAUST FLOW RATE = 1363.4	
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	6313.6	28.605	9.6665	10.5600	0.27911		
CORRECTED CONC. TO WET BASIS			8.0620	8.8069	0.23278		
EMISSION RATE	HC	NOX	CO				
	0.30903	0.0046410	7.9801				
EMISSION MASS/MODE	0.015451	0.00023205	0.39900				
EMISSION MASS/RATED HP	9.6572E-05	1.4503E-06	0.0024938				
MODE EMIS./STD. CYCLE %	5.0827	0.096688	5.9376				
CAL. FUEL AIR RATIO = 0.088895		MEAS. FUEL AIR RATIO = 0.087827		DIFF MEAS. & CAL. F/A PERCENT = 1.2165			
CYL. TEMP. DEG. F	CYL-1	CYL-2	CYL-3	CYL-4			
	272.89	283.35	270.59	266.59			
EXT GAS TEMP DEG. F	FXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	387.45	-454.00	-454.00	-358.03	459.53	457.75	
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 8.3631			
	144.05	89.398	56.390				
DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.386				
	6.9559	1198.5					
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2			
	102.97	101.82	171.41	102.42			
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW			
	89.041	2.0154	53.251	1970.5			
CELL TEMP. = 77.024		HEATER TEMP = 142.76		COOLER TEMP = 102.26			

431

NASA-LEWIS PPFLIMINARY DATA 04/09/76 CADDELL REC 04/09/76 18:58:34.740 FAC SEX15 PGM C003 RDG 3161

LEANOUT 25 BTDC I & T 100 DEG HUM = 30 % 3/4 T CLOSE MCDE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.360 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	98.273	29.344	12.000	48.818	0.61289	14.422

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	74.746	5.7984	44.786	3.9736	3.9754	6.1452

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	98.627	-0.044004	0.86985	0.00000	31.638	63.032

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	31.638	34.597	87.882	2.0181	0.53671

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.081433	0.080424	1.2154	620.94	622.38	4.2838	0.50647

WET CORRECTION FACTOR = 0.83007 EXHAUST MOLE. WT. = 27.567 EXHAUST DENSITY = 0.071376 EXHAUST FLOW RATE = 748.23

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	15903.	14.637	7.1156	10.9980	1.5952	
CORRECTED CONC. TO WET BASIS			5.9064	9.1290	1.3241	

	HC	NOX	CO
EMISSION RATE	0.42719	0.0013033	3.2085
EMISSION MASS/MCDE	0.0071199	2.1722E-05	0.053474
EMISSION MASS/RATED HP	4.4459E-05	1.3576E-07	0.00033421
MODE EMIS./STD. CYCLE %	2.3421	0.0090507	0.79575

CAL. FUEL AIR RATIO = 0.084567 MEAS. FUEL AIR RATIO = 0.081433 DIFF MEAS. & CAL. F/A PERCENT = 3.8486

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	240.75	260.66	244.11	249.15

EXT GAS TEMP DEG.F	FXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	421.41	-454.00	-454.00	116.58	393.12	390.78

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE
	139.51	374.80	48.157	10.822

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	6.5454	607.68	29.458

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	99.973	98.273	132.49	103.15

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	86.523	1.1078	53.168	1478.4

CELL TEMP. = 74.506 HEATER TEMP. = 137.27 COOLER TEMP. = 111.75

432

NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDELL REC 04/09/76 19:08:17.885 FAC SEX15 PGM C003 RDG 3162

LEANOUT 25 BTDC I & T 100 DEG HUM = 30 % NEUTRAL MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.360 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CEM	DRY. FLOW	VAPOR FLOW	PRESS TOTAL
	100.86	29.362	13.100	53.348	0.66757	14.422

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	74.986	5.7630	44.780	6.3415	5.2175	6.1329

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	100.20	-0.055351	0.84134	0.00000	29.170	62.942

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	29.170	0.40204	87.594	2.0115 0.67064

ENG. COND.	F/A DRY	F/A WET	EQ. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.097801	0.096592	1.4597	619.80	621.54	5.3505	0.63143

WET CORRECTION FACTOR = 0.87385 EXHAUST MOLE. WT. = 26.371 EXHAUST DENSITY = 0.068282 EXHAUST FLOW RATE = 867.48

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY
	33187.	6.0566	9.4906	7.88830
CORRECTED CONC. TO WET BASIS			8.2933	6.8932

	HC	NOX	CO
EMISSION RATE	1.0335	0.00062522	5.2231
EMISSION MASS/MODE	0.017226	1.0420E-05	0.087051
EMISSION MASS/RATED HP	0.00010766	6.5127E-08	0.00054407
MODE EMISS./STD. CYCLE %	5.6663	0.0043418	1.2954

CAL. FUEL AIR RATIO = 0.094865 MEAS. FUEL AIR RATIO = 0.097801 DIFF. MEAS. & CAL. F/A PERCENT = -3.0022

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	273.83	286.65	267.53	281.05

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1791.4	-454.00	-454.00	56.677	550.27	549.18

ENGINE OIL	EOILT	SOILT	DILP	MANIFOLD PRESSURE = 11.836
	150.93	282.17	46.977	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.218
	7.2223	614.94	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	102.56	100.86	83.337	102.63

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	87.766	1.0739	53.210	1454.3

CELL TEMP. = 75.331 HEATER TEMP. = 129.00 COOLER TEMP. = 123.27



NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDEII REC 04/09/76 19:10:54.313 FAC SEX15 PGM C003 RDG 3163

LEANOUT 25 BTDC I & T 100 DEG HUM = 30 % NEUTRAL MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.360 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS. TOTAL
	102.11	29.371	24.254	98.894	1.2455	14.428

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	75.589	5.6865	44.764	10.903	9.5649	6.1221

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	100.17	-0.056182	0.84909	0.00000	28.289	63.132

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	28.289	37.810	88.159	2.0244	2.0250

ENG. COND.	E/A DRY	E/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.096720	0.095517	1.4436	1205.3	1207.3	8.3008	1.9050

WET CORRECTION FACTOR = 0.84027 EXHAUST MOLE. WT. = 26.444 EXHAUST DENSITY = 0.068471 EXHAUST FLOW RATE = 1602.2

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM	CO2 DRY
	14312.	11.9280
	NOX PPM	CO DRY
	12.068	8.70510
CORRECTED CONC. TO WET BASIS		0.50873

EMISSION RATE	HC	NOX	CO
	0.82323	0.0023009	11.659
EMISSION MASS/MODE	0.15093	0.00042184	2.1374
EMISSION MASS/RATED HP	0.00094329	2.6365E-06	0.013359
MODE EMISS./STD. CYCLE %	49.647	0.17577	31.807

CAL. FUEL AIR RATIO = 0.098871 MEAS. FUEL AIR RATIO = 0.096720 DIFF MEAS. & CAL. F/A PERCENT = 2.2248

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	261.46	275.39	254.80	255.00

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	460.39	-378.37	-454.00	18.042	516.31	513.50

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 9.0603
	146.93	180.03	56.194	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.604
	3.3195	1192.4	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	103.37	102.11	135.70	102.06

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	83.299	2.0704	53.296	1997.1

CELL TEMP. = 75.917 HEATER TEMP. = 130.33 COOLER TEMP. = 120.43

434

NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDEII REC 04/09/76 19:11:17.044 FAC SEX15 PG4 C003 RDG 3164

LEANOUT 25 BTDC I & T 100 DEG HUM = 30 % NEUTRAL MODE = 6.0000 ND. SCANS = 5

ENGINE TIMING = 25.000 DEG. BARMETRIC PRESSURE = 29.360 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	102.29	29.368	23.496	95.723	1.2020	14.426

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	75.562	5.6913	44.764	10.771	9.3039	6.1281

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT
	100.28	-0.044558	0.87815	0.00000	28.053	63.047

RFL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	29.053	0.29403	87.902	2.0185 1.8855

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	PPM-2	TORQUE	BMP
	0.097196	0.095991	1.4507	1207.0	1208.2	7.7174	1.7735

WET CORRECTION FACTOR = 0.84616 EXHAUST MOLE. WT. = 26.412 EXHAUST DENSITY = 0.068387 EXHAUST FLOW RATE = 1553.3

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY
	12711.	12.898	11.664	8.89420
CORRECTED CONC. TO WET BASIS			9.8695	7.5260

	HC	NOX	CO
EMISSION RATE	0.70884	0.0023842	11.130
EMISSION MASS/MODE	0.035442	0.00011921	0.55651
EMISSION MASS/RATED HP	0.00022151	7.4507E-07	0.0034782
MODE EMISS./STD. CYCLE %	11.659	0.049671	8.2813

CAL. FUEL AIR RATIO = 0.097430 MEAS. FUEL AIR RATIO = 0.097196 DIFF. MEAS. & CAL. F/A PERCENT = 0.24076

CYL TEMP. DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	264.65	277.46	258.54	257.64

EXT GAS TEMP DEG. F	FXT-1	EXT-2	EXT-3	EXT-4	SFXT-1	SEXT-2
	1014.8	-454.00	-454.00	-454.00	515.03	512.40

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE =
	146.20	96.252	56.286	8.9014

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE =
	7.7552	1202.0	29.197

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	103.56	102.29	159.12	102.50

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	89.273	2.0292	53.353	1978.3

CELL TEMP. = 76.129 HEATER TEMP = 129.66 COOLER TEMP = 120.86

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NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDELL REC 04/09/76 19:17:39.240 FAC SEX15 PGM C003 RDG 3165

LEANOUT 25 BTDC I & T 100 DEG HUM = 30 % NEUTRAL MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.360 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	99.542	29.371	13.261	53.955	0.67735	14.417

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	74.666	5.7624	44.788	3.9755	5.1575	6.1464

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	98.774	-0.045665	0.86155	0.00000	30.436	63.022

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	30.436	33.119	87.878	2.0180	0.17527

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.095588	0.094403	1.4267	594.90	594.24	1.4585	0.16520

WET CORRECTION FACTOR = 0.86623 EXHAUST MOLE. WT. = 26.522 EXHAUST DENSITY = 0.068671 EXHAUST FLOW RATE = 870.68

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	34493.	5.0285	9.1705	7.97610	3.4300
CORRECTED CONC. TO WET BASIS			7.9437	6.9091	2.9712

	HC	NOX	CO
EMISSION RATE	1.0782	0.00052101	5.0213
EMISSION MASS/MODE	0.017970	8.5834E-06	0.083689
EMISSION MASS/RATED HP	0.00011231	5.4271E-08	0.00052306
MODE EMIS./STD. CYCLE %	5.9110	0.0036181	1.2454

CAL. FUEL AIR RATIO = 0.094775 MEAS. FUEL AIR RATIO = 0.095588 DIFF MEAS. & CAL. F/A PERCENT = -0.85109

CYL TEMP. DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	242.94	255.94	232.61	242.03

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1096.5	-454.00	-454.00	-27.563	429.60	426.33

ENGINE OIL	EOILT	SOILT	OILT	MANIFOLD PRESSURE
	139.67	365.23	47.761	11.932

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	3.5420	591.18	29.102

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	101.29	99.542	108.52	102.91

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	86.873	1.0328	53.187	1427.7

CELL TEMP. = 74.613 HEATER TEMP = 128.33 COOLER TEMP = 118.46

436

NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDEII REC 04/09/76 19:26:05.243 FAC SEX15 PGM C003 RDG 3166

LEANOUT 25 BTDC I & T 100 DEG HUM = 30 % 3/4 T OPEN MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BARMETRIC PRESSURE = 29.360 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	100.83	29.358	14.554	59.265	0.73930	14.421

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	73.512	5.7381	44.818	7.4712	6.2496	6.1266

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	99.102	-0.045388	0.86293	0.00000	29.101	62.852

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	29.101	36.060	87.322	2.0052	0.34895

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	RHP
	0.10545	0.10415	1.5739	591.66	591.84	2.9170	0.32861

WET CORRECTION FACTOR = 0.89229 EXHAUST MOLE. WT. = 25.879 EXHAUST DENSITY = 0.067008 EXHAUST FLOW RATE = 988.75

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	O2 DRY
	44982.	4.3834	10.179	6.39000
CORRECTED CONC. TO WET BASIS			9.0826	5.7017

	HC	NOX	CO
EMISSION RATE	1.5967	0.00051576	6.5198
EMISSION MASS/MODE	0.026612	8.5960F-06	0.10866
EMISSION MASS/RATED HP	0.00016632	5.3725F-08	0.00067914
MODE EMISS./STD. CYCLE %	8.7539	0.2035817	1.6170

CAL. FUEL AIR RATIO = 0.10071 MEAS. FUEL AIR RATIO = 0.10545 DIFF MEAS. & CAL. F/A PERCENT = -4.4941

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	291.93	306.34	288.25	305.01

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	485.38	-333.46	-454.00	107.74	571.06	570.63

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	148.09	328.97	46.573	13.047

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	5.1629	586.14	29.420

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	102.45	100.83	74.189	102.62

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	87.136	1.0867	53.250	1463.6

CELL TEMP. = 74.595 HEATER TEMP = 109.18 COOLER TEMP = 115.12

437

NASA-LEWIS PRELIMINARY DATA 04/09/76 CARDELL REC 04/09/76 19:43:45.052 FAC SEX15 PGM C003 RDG 3167

LEANOUT 25 BTDC 1 & T 100 DEG HUM = 30 3/4 T OPEN MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.360 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	101.26	29.355	25.489	103.91	1.2984	14.431

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	72.062	5.6901	44.857	12.274	10.936	6.1488

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	94.481	-0.085795	0.79346	0.00000	28.793	62.917

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	28.793	19.158	87.465	2.0085	1.2037

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10524	0.10394	1.5708	1206.5	1207.4	4.9338	1.1334

WET CORRECTION FACTOR = 0.85574 EXHAUST MOLE. WT. = 25.892 EXHAUST DENSITY = 0.067041 EXHAUST FLOW RATE = 1732.5

MEASURED CONC.	PART PER MILLION WET	CO DRY	PER CENT	O2 DRY
	H2 PPM	NOX PPM	12.933	7.99170
	17779.	7.7978	11.067	0.55593
CORRECTED CONC. TO WET BASIS			6.8388	0.47574

EMISSION RATE	HC	NOX	CO
	1.1058	0.0016076	13.920
EMISSION MASS/MODE	0.20274	0.00029474	2.5521
EMISSION MASS/RATED HP	0.0012671	1.8421E-06	0.015950
MODE EMIS./STD. CYCLE %	66.690	0.12281	37.977

CAL. FUEL AIR RATIO = 0.10423 MEAS. FUEL AIR RATIO = 0.10524 DIFF MEAS. & CAL. F/A PERCENT = -0.95664

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	331.42	342.48	338.48	350.32

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1537.1	-454.00	-454.00	92.286	694.68	695.80

ENGINE OIL	EOILT	SOILT	NOILP	MANIFOLD PRESSURE
	143.36	297.29	55.402	9.6882

CYND COND.	TORQUE	RPM	CYL. BACK PRESSURE
	14.884	1201.7	29.438

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	102.44	101.26	185.89	102.34

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	86.830	1.0079	53.211	1410.7

CELL TEMP. = 74.045 HEATER TEMP = 117.40 COOLER TEMP = 123.73

438

NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDELL REC 04/09/76 19:44:07.335 FAC SEX15 PGM C003 RDG 3168

LEAN CUT 25 BTDC I & T 100 DEG HUM = 30 % 3/4 T OPEN MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.360 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	101.08	29.355	25.598	104.45	1.3013	14.424

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	72.124	5.6814	44.855	12.539	11.269	6.1395

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	94.784	-0.079983	0.84715	0.00000	28.852	62.822

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	28.852	24.028	87.210	2.0026	2.0725

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10789	0.10656	1.6103	1204.8	1205.8	8.5092	1.9520

WET CORRECTION FACTOR = 0.86553 EXHAUST MOLE. WT. = 25.731 EXHAUST DENSITY = 0.066624 EXHAUST FLOW RATE = 1756.4

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	17990.	7.8448	12.901	7.97190	0.62252
CORRECTED CONC. TO WET BASIS			11.166	6.8999	0.53881

	HC	NOX	CO
EMISSION RATE	1.1344	0.0016397	14.239
EMISSION MASS/MODE	0.056720	8.1983E-05	0.71193
EMISSION MASS/RATED HP	0.00035450	5.1239E-07	0.0044496
MODE EMISS./STD. CYCLE %	18.658	0.034160	10.594

CAL. FUEL AIR RATIO = 0.10395 MEAS. FUEL AIR RATIO = 0.10789 DIFF MEAS. & CAL. F/A PERCENT = -3.6534

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	324.39	336.15	331.13	343.34

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1630.8	-454.00	-454.00	-454.00	681.52	681.82

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	143.55	10.833	55.485	9.7216

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	4.3924	1189.7	29.451

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	102.25	101.08	55.561	101.61

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	86.926	2.0322	53.291	1982.1

CELL TEMP. = 74.242 HEATER TEMP. = 117.35 COOLER TEMP. = 121.37

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NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDEII REC 04/09/76 19:49:19.959 FAC SEX15 PG4 C003 R06 3169

LEANOUT 25 BTDC 1.6 T 100 DEG HUM = 30 & 3/4 T OPEN MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.360 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	100.61	29.360	14.984	61.148	0.76458	14.421

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	73.991	5.7549	44.806	7.2577	6.3306	6.1536

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	96.742	-0.10406	0.82944	0.00000	29.364	62.917

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	29.364	0.32003	87.525	2.0099	0.26089

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10353	0.10225	1.5452	600.12	603.12	2.1502	0.24569

WFT CORRECTION FACTOR = 0.87912 EXHAUST MOL. WT. = 25.999 EXHAUST DENSITY = 0.067318 EXHAUST FLOW RATE = 1013.8

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	O2 DRY
	40794	4.4974	10.4390	6.7587
CORRECTED CONC. TO WET BASIS			9.1775	5.9417
				3.3162

EMISSION RATE	HC	NOX	CO
	1.4846	0.00054256	6.7545
EMISSION MASS/MODE	0.024744	9.0426E-06	0.11258
EMISSION MASS/RATED HP	0.00015465	5.6516E-08	0.00070360
MODE EMISS./STD. CYCLE %	8.1395	0.0037678	1.6752

CAL. FUEL AIR RATIO = 0.10132 MEAS. FUEL AIR RATIO = 0.10353 DIFF MEAS. & CAL. F/A PERCENT = -2.1292

CYL. TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	261.27	277.55	259.06	271.45

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1152.7	-454.00	-454.00	78.806	554.63	551.60

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 13.224
	139.88	340.19	47.625	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.386
	3.0603	592.80	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	102.31	100.61	74.412	101.41

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	87.775	0.10221	53.300	354.05

CELL TEMP. = 74.426 HEATER TEMP = 120.57 COOLER TEMP = 117.85



NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDE11 REC 04/09/76 19:57:45.003 FAC SEX15 PGM C003 RDG 3170  
 LEANOUT 25 BTDC I & T 100 DEG HUM = 30 % 1 1/2 T OPE MODE = 1.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.360 RATED HP. = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	101.51	29.357	16.500	67.344	0.83541	14.424	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	73.343	5.7339	44.823	8.4037	7.3177	6.1590	
COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	97.391	-0.091883	0.81007	0.00000	28.370	62.702	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	28.370	10.561	86.836	1.9940	0.15993		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10866	0.10733	1.6218	608.10	609.54	1.3001	0.15053
WET CORRECTION FACTOR = 0.88918		EXHAUST MOLE. WT. = 25.685		EXHAUST DENSITY = 0.066506		EXHAUST FLOW RATE = 1135.2	
MEASURED CONC.	ART PER MILLION WET		PER CENT				
	CO PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	45388	4.5785	10.9600	6.20030	4.0574		
CORRECTED CONC. TO WET BASIS			9.7450	5.5132	3.6077		
EMISSION RATE	HC	NOX	CO				
EMISSION MASS/MODE	1.8497	0.00061849	8.0313				
EMISSION MASS/RATED HP	0.030829	1.0308E-05	0.13386				
MODE EMIS./STD. CYCLE %	0.00019268	6.4426E-08	0.00083660				
	10.141	0.0042951	1.9919				
CAL. FUEL AIR RATIO = 0.10470		MEAS. FUEL AIR RATIO = 0.10866		DIFF MEAS. & CAL. F/A PERCENT = -3.6464			
CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4			
	293.77	307.11	287.54	307.89			
EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	1723.7	787.58	331.42	970.19	635.15	633.34	
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 13.900			
	148.55	287.08	46.813				
DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.250				
	11.197	607.56					
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2			
	103.08	101.51	100.80	101.51			
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW			
	87.958	0.095609	53.196	336.31			
CELL TEMP. = 74.666	HEATER TEMP = 120.25		COOLER TEMP = 114.13				

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NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDELL REC 04/09/76 20:00:14.974 FAC SEX15 PGM C003 RDG 3171

LEANOUT 25 BTDC I & T 100 DEG HUM = 30 % 1 1/2 T OPE MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.360 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	100.76	29.361	25.688	108.86	1.3580	14.423

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	72.079	5.6742	44.856	12.407	11.251	6.1368

COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	95.798	-0.094098	0.79485	0.00000	29.173	62.857

PFL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	29.173	27.169	87.323	2.0052	1.3855

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10335	0.10208	1.5426	1204.3	1204.6	5.6922	1.3052

WET CORRECTION FACTOR = 0.84931 EXHAUST MOLE. WT. = 26.010 EXHAUST DENSITY = 0.067346 EXHAUST FLOW RATE = 1803.7

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	19809.	7.2007	12.8640	7.86870	0.76348
CORRECTED CONC. TO WET BASIS			10.926	6.6830	0.64843

	HC	NOX	CO
EMISSION RATE	1.2827	0.0015455	14.307
EMISSION MASS/MODE	0.23517	0.00028335	2.6230
EMISSION MASS/RATED HP	0.0014698	1.7709F-06	0.016393
MODE EMIS./STD. CYCLE %	77.358	0.11806	39.032

CAL. FUEL AIR RATIO = 0.10472 MEAS. FUEL AIR RATIO = 0.10335 DIFF MEAS. & CAL. F/A PERCENT = 1.3266

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	271.12	292.39	275.41	281.91

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	650.25	1091.5	1136.6	1161.7	603.73	600.49

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 9.9073
	146.13	276.02	55.910	

DYNQ COND.	TORQUE	RPM	CYL. RACK PRESSURE = 29.270
	8.1224	1195.5	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	102.00	100.76	171.41	101.76

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	86.322	1.0794	53.242	1459.8

CFLT TEMP. = 73.022 HEATER TEMP = 121.96 COOLER TEMP = 116.49

NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDEII REC 04/09/76 20:00:37.197 FAC SEX15 PGM C003 RDG 3172  
 LEANOUT 25 BTDC I & T 100 DEG HUM = 30 % I 1/2 T OPE MODE = 6.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.360 RATED HP. = 160.00 HC RATIO = 2.1250  

CCMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	100.52	29.356	25.915	105.82	1.3199	14.426	
CCMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	72.062	5.6772	44.857	12.508	11.215	6.1353	
COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT	
	95.798	-0.098802	0.83387	0.00000	29.378	62.857	
RFL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	29.378	5.8986	87.308	2.0049	0.84481		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10598	0.10467	1.5818	1203.0	1204.1	3.4753	0.79605
WET CORRECTION FACTOR = 0.86031		EXHAUST MOLE. WT. = 25.847		EXHAUST DENSITY = 0.066924		EXHAUST FLOW RATE = 1768.6	
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY			
	18519.	7.2987	12.7940	7.96380	0.70487		
CORRECTED CONC. TO WET BASIS			11.007	6.8514	0.60641		
EMISSION RATE	HC	NOX	CO				
	1.1758	0.0015361	14.132				
EMISSION MASS/MODE	0.058792	7.6804E-05	0.70661				
EMISSION MASS/RATED HP	0.00036745	4.8002E-07	0.0044163				
MODE EMIS./STD. CYCLE %	19.339	0.032002	10.515				
CAL. FUEL AIR RATIO = 0.10378		MFAS. FUEL AIR RATIO = 0.10598		DIFF MEAS. & CAL. F/A PERCENT = -2.0761			
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	272.39	292.80	276.73	282.41			
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	623.12	1092.9	1144.6	1202.3	600.27	596.98	
ENGINE OIL	EQILT	SDILT	OilP	MANIFOLD PRESSURE = 9.6939			
	145.53	21.091	56.006				
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.404				
	3.1107	1196.8					
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2			
	101.75	100.52	189.14	101.24			
ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW			
	86.357	0.10141	53.225	352.39			
CELL TEMP. =	73.067	HEATER TEMP =	127.57	COOLER TEMP =	119.29		

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NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDETT REC 04/09/76 20:06:25.732 FAC SEX15 PGM C003 RDG 3173

LEANOUT 25 BTDC I & T 100 DEG HUM = 30 \* 1 1/2 T OPE MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.360 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	100.38	29.366	15.820	64.484	0.80355	14.421

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	73.512	5.7468	44.818	7.7187	6.7117	6.1458

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	96.318	-0.097142	0.78461	0.00000	29.471	62.822

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	29.471	11.203	87.228	2.0031	0.39694

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10408	0.10280	1.5535	602.70	604.14	3.2587	0.37395

WET CORRECTION FACTOR = 0.87800 EXHAUST MOLE. WT. = 25.964 EXHAUST DENSITY = 0.067228 EXHAUST FLOW RATE = 1071.0

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	41972.	4.5024	10.697	6.69880	3.8555
CORRECTED CONC. TO WET BASIS			9.3921	5.8816	3.3851

	HC	NOX	CO
EMISSION RATE	1.6138	0.00057382	7.3027
EMISSION MASS/MODE	0.026896	9.5637E-06	0.12171
EMISSION MASS/RATED HP	0.00016810	5.9773E-08	0.00076069
MODE EMIS./STD. CYCLE %	8.8473	0.0039849	1.8112

CAL. FUEL AIR RATIO = 0.10216 MEAS. FUEL AIR RATIO = 0.10408 DIFF MEAS. & CAL. F/A PERCENT = -1.8514

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	242.22	265.56	243.26	255.46

EXT GAS TEMP DEG. F	FXT-1	EXT-2	EXT-3	FXT-4	SFXT-1	SEXT-2
	1123.7	871.00	501.35	803.54	497.14	493.88

ENGINE OIL	FOILT	SOILT	OTLP	MANIFOLD PRESSURE
	138.70	231.72	47.325	13.147

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	2.7507	593.64	29.203

INDUCTION AIR	TAIPT1	TAIPT2	TAIPT1	TAIPT2
	102.01	100.38	97.883	102.08

ORIFICE AIR	TEMP	DELTAP	ORIF	FLOW
	87.495	1.0567	53.307	1443.1

CELL TEMP. = 73.698 HEATER TEMP = 147.06 COOLER TEMP = 125.43

NASA-LEWIS PRELIMINARY DATA 04/09/76 CARDELL REC 04/C9/76 20:40:51.018 FAC SEX15 PGM C003 R06 3176

LEANOUT 25 BTDC I & T 100 DEG HUM = 60 % 1 1/2 T QPF MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.370 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	99.360	29.366	17.092	68.517	1.6802	14.429

COMP. FUFL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	72.284	5.7408	44.851	8.1475	7.0267	6.1383

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	94.316	-0.089669	0.78267	0.00000	58.721	82.334

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	58.721	0.33803	171.66	3.9419	0.023316

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10255	0.10010	1.5307	591.18	589.56	0.19169	0.021577

WET CORRECTION FACTOR = 0.86282 EXHAUST MOLE. WT. = 26.061 EXHAUST DENSITY = 0.067477 EXHAUST FLOW RATE = 1144.4

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	45588.	4.2454	9.99640	6.68830	4.3520	
CORRECTED CONC. TO WET BASIS			8.6251	5.7708	3.7550	

	HC	NOX	CO
EMISSION RATE	1.8730	0.00057818	7.1663
EMISSION MASS/MODE	0.031217	9.6363E-06	0.11944
EMISSION MASS/RATED HP	0.00019511	6.0277E-08	0.00074649
MODE EMIS./STD. CYCLE %	12.269	0.0040151	1.7773

CAL. FUEL AIR RATIO = 0.10112 MEAS. FUEL AIR RATIO = 0.10255 DIFF MEAS. & CAL. F/A PERCENT = -1.3256

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	205.25	244.82	211.89	224.28

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	727.63	884.63	759.36	714.29	451.03	448.40

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	132.71	212.52	44.768	14.030

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	6.9199	588.18	29.456

INDUCTION AIR	IAIRT1	IAIRT2	IAIRT1	IAIRT2
	100.93	99.360	102.38	101.18

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	86.987	4.7491	53.266	2.981.9

CFL. TEMP. = 72.311 HEATER TEMP = 105.10 COOLER TEMP = 113.09

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NASA-LEWIS		PRELIMINARY DATA		04/09/76	CADDEII	REC 04/09/76 20:55:12.179	FAC SEX15	PGM C003	RDG 3177
LEANOUT 25 BTDC I & T 100 DEG HUM = 60 % I 1/2 T OPE MODE = 2.0000 NO. SCANS = 5									
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.360		RATED HP. = 160.00		HC RATIO = 2.1250	
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL			
	102.54	29.360	28.764	115.10	2.9789	14.426			
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP			
	73.885	5.6610	44.809	13.584	12.376	6.1401			
COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT			
	96.699	-0.097972	0.87013	0.00000	56.212	83.934			
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP				
	56.212	22.392	181.17	4.1603	1.1908				
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP		
	0.10753	0.10481	1.6049	1200.1	1199.5	4.8005	1.0969		
WET CORRECTION FACTOR = 0.84821		EXHAUST MOLE. WT. = 25.753		EXHAUST DENSITY = 0.066681		EXHAUST FLOW RATE = 1956.4			
MEASURED CONC.	PART PER MILLION WET		PER CENT						
	HC PPM	NOX PPM	CO DRY	CO2 DRY	CO2 DRY				
	21580.	6.2186	12.4790	8.06010	0.90659				
CORRECTED CONC. TO WET BASIS			10.585	6.8366	0.76897				
	HC	NOX	CO						
EMISSION RATE	1.5157	0.0014478	15.034						
EMISSION MASS/MODE	0.27787	0.00026542	2.7563						
EMISSION MASS/RATED HP	0.0017367	1.5589E-06	0.017227						
MODE EMIS./STD. CYCLE %	91.405	0.11059	41.016						
CAL. FUEL AIR RATIO = 0.10389		MEAS. FUEL AIR RATIO = 0.10753		DIFF MEAS. & CAL. F/A PERCENT = -3.3854					
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4					
	270.69	290.84	278.39	285.54					
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2			
	421.43	1145.2	1164.8	777.64	501.72	502.56			
ENGINE OIL	EOILT	SOILT	COILT	MANIFOLD PRESSURE = 10.473					
	130.23	287.00	58.770						
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.190						
	2.7579	1204.4							
INDUCTION AIR	IAIRT1	IAIRT2	IAIRT1	IAIRT2					
	103.66	102.54	200.18	100.93					
ORIFICE AIR	TEMP	DELTAP	ORIF	FLOW					
	89.652	4.2348	53.327	2816.0					
CELL TEMP. = 74.950		HEATER TEMP = 114.50		COOLER TEMP = 111.07					

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NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDET REC 04/09/76 21:01:07.366 FAC SEX15 PGM C003 RDG 3180

LEANOUT 25 BTDC 1.6 T 100 DEG HUM = 60 % 1 1/2 T OPE MODE = 6.0000 NO. SCANS = 4

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.360 RATED HP = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	100.10	29.356	28.503	113.96	2.9526	14.425

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	71.509	5.6601	44.871	13.572	12.357	6.1472

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	94.281	-0.093752	0.82543	0.00000	60.530	83.963

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	60.530	15.469	181.36	4.1647

EAG. COND.	E/A DRY	E/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10844	0.10570	1.6185	1198.0	1199.6	4.4484	1.0147

WET CORRECTION FACTOR = 0.85053 EXHAUST MFL. WT. = 25.699 EXHAUST DENSITY = 0.066540 EXHAUST FLOW RATE = 1942.7

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	NOX PPM	CO2 DRY
22509.	6.4819	12.4410
CORRECTED CONC. TO WET BASIS		8.05340
		0.95184
		10.581
		6.8496
		0.80957

EMISSION RATE	HC	NOX	CO
EMISSION MASS/MODE	1.5699	0.0014985	14.924
EMISSION MASS/RATED HP	0.078496	7.4925E-05	0.74621
MODE EMIS./STD. CYCLE %	0.00049060	4.5829E-07	0.0046638
	25.821	0.031219	11.104

CAL. FUEL AIR RATIO = 0.10411 MEAS. FUEL AIR RATIO = 0.10844 DIEE MEAS. & CAL. E/A PERCENT = -3.9909

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	267.90	289.44	277.59	285.34

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SFXT-1	SEXT-2
	1286.9	1148.1	1120.2	844.22	505.54	506.31

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 10.509
	130.82	-123.70	59.546	

DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.317
	10.837	1186.4	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	101.24	100.10	24.930	101.32

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	87.409	4.2880	53.292	2839.1

CELL TEMP. = 72.600 HEATER TEMP. = 153.82 COOLER TEMP. = 118.81



NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDEII REC 04/09/76 21:09:18.994 FAC SEX15 PGM C003 RDG 3183

LEANOUT 25 BYDC-1 & T 100 DEG HUM = 60 % 1 1/2 T OPE MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.360 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	99.895	29.374	17.782	71.198	1.8340	14.418

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	73.307	5.7345	44.824	8.3093	7.1887	6.1581

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	95.036	-0.096588	0.82446	0.00000	60.531	83.774

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	60.531	7.8948	180.31	4.1406 0.66937

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10097	0.098433	1.5070	583.92	585.36	5.5589	0.61804

WET CORRECTION FACTOR = 0.85695 EXHAUST MOLE. WT. = 26.163 EXHAUST DENSITY = 0.067741 EXHAUST FLOW RATE = 1184.2

MEASURED CONC.	PAPT PER MILLION WFT	NOX PPM	CO DRY	PER CENT	CO2 DRY	O2 DRY
	45234	4.4054	10.0120	6.62710	4.4340	
CORRECTED CONC. TO WET BASIS			8.5798	5.6791	3.7997	

	HC	NOX	CO
EMISSION RATE	1.9231	0.00062082	7.3764
EMISSION MASS/MODE	0.032051	1.2347E-05	0.12294
EMISSION MASS/RATED HP	0.00020032	6.4669F-08	0.00076838
MODE EMIS./STD. CYCLE %	10.543	0.0043113	1.8295

CAL. FUEL AIR RATIO = 0.10100 MEAS. FUEL AIR RATIO = 0.10097 DIFF MEAS. & CAL. F/A PERCENT = 0.030225

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	203.35	239.58	208.21	224.07

EXT GAS TEMP DEG.F	FXT-1	EXT-2	EXT-3	FXT-4	SEXT-1	SEXT-2
	925.25	900.79	519.51	550.85	380.59	378.97

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE =
	126.37	-154.62	48.537	14.285

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE =
	8.9361	575.22	29.403

INDUCTION AIR	TAIRT1	TAIPT2	TAIRT1	TAIRT2
	101.35	99.895	135.36	100.36

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	88.884	4.3136	53.235	2843.6

CFLT TEMP. = 73.645 HEATER TEMP = 124.21 COOLER TEMP = 115.73

NASA-LEWIS PRELIMINARY DATA 04/09/76 CARDELL REC 04/09/76 21:16:58.688 FAC SEX15 PGM C003 RDG 3184

LEANOUT 25 BTDC I & T 100 DEG HUM = 60 % 3/4 T OPEN MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.360 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	100.43	29.351	17.419	69.700	1.7994	14.420

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	72.027	5.7486	44.856	7.8559	6.7717	6.1530

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	94.802	-0.078599	0.84107	0.00000	59.700	83.844

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	59.700	16.762	180.71	4.1498	0.60419

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.097154	0.094709	1.4501	599.52	601.20	4.8838	0.55749

WET CORRECTION FACTOR = 0.84137 EXHAUST MOLE. WT. = 26.415 EXHAUST DENSITY = 0.068395 EXHAUST FLOW RATE = 1144.4

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM	CO2 DRY
	44730.	6.65650
CORRECTED CONC. TO WET BASIS	NOX PPM	O2 DRY
	4.2514	4.3684
	10.016	3.6755
	8.4270	5.6006

EMISSION RATE	HC	NOX	CO
	1.8377	0.00057898	7.0015
EMISSION MASS/MODE		9.6496E-06	0.11669
	0.030629		
EMISSION MASS/RATED HP		6.0310E-08	0.00072932
	0.00019143		
MODE EMIS./STD. CYCLE %		0.0040207	1.7365
	10.075		

CAL. FUEL AIR RATIO = 0.10132 MEAS. FUEL AIR RATIO = 0.097154 DIFF MEAS. & CAL. F/A PERCENT = 4.3619

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	286.31	307.28	295.53	314.22

EXT GAS TEMP DEG. F	FXT-1	FXT-2	FXT-3	FXT-4	SFXT-1	SEXT-2
	890.04	914.57	299.14	888.61	604.21	604.94

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	138.93	324.92	47.365	= 13.895

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	5.9478	596.04	= 29.494

INDUCTION AIR	IAIPT1	IAIRT2	TAIPT1	TAIRT2
	101.92	100.43	104.39	100.72

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	88.814	4.2081	53.441	2809.3

CFL TEMP. = 73.600 HEATER TEMP = 130.95 COOLER TEMP = 106.37

NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDELL REC 04/09/76 21:19:59.336 FAC SEX15 PGM C003 RDG 3185  
 LEANOUT 25 BTDC I & T 100 DEG HUM = 60 % 3/4 T OPEN MODE = 2.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.360 RATED HP. = 160.00 HC RATIO = 2.1250  

COMP. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	99.921	29.365	29.968	119.98	3.1086	14.425	
COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	71.420	5.6556	44.874	14.256	12.868	6.1347	
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	93.778	-0.096588	0.82335	0.00000	60.855	83.964	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	60.855	20.888	181.37	4.1649	1.7859		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	RHP
	0.10726	0.10455	1.6008	1201.3	1202.5	7.2090	1.6490
WET CORRECTION FACTOR = 0.84757		EXHAUST MOLE. WT. = 25.759		EXHAUST DENSITY = 0.066723		EXHAUST FLOW RATE = 2037.6	
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	23148.	6.6197	12.3730	8.00980	1.0609		
CORRECTED CONC. TO WET BASIS			10.487	6.7889	0.89919		
EMISSION RATE	HC	NOX	CO				
	1.6933	0.0016051	15.513				
EMISSION MASS/MODE	0.31043	0.00029426	2.8440				
EMISSION MASS/RATED HP	0.0019402	1.8391E-06	0.017775				
MODE EMIS./STD. CYCLE %	102.12	0.12261	42.321				
CAL. FUEL AIR RATIO = 0.10403		MEAS. FUEL AIR RATIO = 0.10726		DIFF MEAS. & CAL. F/A PERCENT = -3.0079			
CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4			
	254.41	282.10	262.23	268.15			
EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	1962.0	1126.7	986.88	917.87	568.67	567.93	
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 10.561			
	138.10	273.64	57.050				
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.341				
	8.6121	1210.1					
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2			
	101.04	99.921	128.28	100.57			
ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW			
	87.547	4.2762	53.285	2834.9			
CELL TEMP. = 72.168		HEATER TEMP = 118.09		COOLER TEMP = 115.70			

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NASA-LFWTS PPELIMINARY DATA 04/09/76 CADDETT REC 04/09/76 21:23:44.237 FAC SEX15 PGM C003 RDG 3187  
 LEANOUT 25 BTDC I & I 100 DEG HUM = 60 % 3/4 I OPEN MODE = 6.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.360 RATED HP. = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	100.38	29.351	29.797	119.33	3.0905	14.424	
COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	72.177	5.6622	44.854	13.885	12.511	6.1356	
COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	94.472	-0.083304	0.87123	0.00000	59.996	83.949	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	59.996	12.323	181.30	4.1632	0.77009		
ENG. COND.	E/A DRY	E/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	
	0.10485	0.10220	1.5649	1204.0	1203.7	3.1003	
						RHP	
						0.71074	
WET CORRECTION FACTOR = 0.84034				EXHAUST MOLE. WT. = 25.916		EXHAUST DENSITY = 0.067104	
				EXHAUST FLOW RATE = 2010.7			
MEASURED CONC.		PART PER MILLION WET		PER CENT			
		HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
		22450.	6.6067	12.3450	7.97690	1.0270	
CORRECTED CONC. TO WET BASIS				10.374	6.7033	0.86303	
		HC	NOX	CO			
EMISSION RATE		1.6206	0.0015808	15.144			
EMISSION MASS/MODE		0.081028	7.9040E-05	0.75720			
EMISSION MASS/RATED HP		0.00050643	4.9400E-07	0.0047325			
MODE EMIS./STD. CYCLE %		26.654	0.032933	11.268			
CAL. FUEL AIR RATIO = 0.10398		MEAS. FUEL AIR RATIO = 0.10485		DIFF MEAS. & CAL. F/A PERCENT = -0.82941			
CYL. TEMP. DEG. F	CYL-1	CYL-2	CYL-3	CYL-4			
	268.28	291.88	272.51	282.54			
EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	1138.9	1131.2	1176.7	988.81	554.23	553.71	
ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 10.485			
	134.30	29.360	58.250				
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.279				
	9.5770	1204.9					
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2			
	101.50	100.38	80.497	100.37			
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW			
	88.2P1	4.2785	53.322	2833.8			
CELL TEMP. = 72.951	HEATER TEMP = 113.34		COOLER TEMP = 112.71				

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NASA-LEWIS PRELIMINARY DATA 04/09/76 CANDELL REC 04/09/76 21:24:04.181 FAC SEX15 PGM C003 RDG 3188

LEANOUT 25 BTDC I & T 100 DEG HUM = 60 % 3/4 T OPEN MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.360 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	100.47	29.349	29.387	117.70	3.0457	14.429

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	72.186	5.6622	44.854	13.987	12.577	6.1395

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	94.429	-0.082197	0.84107	0.00000	59.796	83.934

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	59.796	18.158	181.14	4.1595

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10686	0.10416	1.5949	1203.2	1204.9	7.2757	1.6669

WET CORRECTION FACTOR = 0.84809 EXHAUST MOLE. WT. = 25.793 EXHAUST DENSITY = 0.066785 EXHAUST FLOW RATE = 1996.3

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	22834.	7.95430
NOX PPM	4.4636	1.1170
CO DRY	12.3290	0.94732
CO2 DRY	10.456	

CORRECTED CONC. TO WET BASIS	HC	NOX	CO
EMISSION RATE	1.6365	0.0015355	15.154
EMISSION MASS/MODE	0.081823	7.6775E-05	0.75772
EMISSION MASS/RATED HP	0.00051139	4.7984E-07	0.0047358
MODE EMIS./STD. CYCLE %	26.915	0.031990	11.276

CAL. FUEL AIR RATIO = 0.10371 MEAS. FUEL AIR RATIO = 0.10686 DIFF MEAS. & CAL. F/A PERCENT = -2.9463

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	268.76	292.46	272.71	283.14

EXT GAS TEMP DEG. F	FXT-1	EXT-2	EXT-3	FXT-4	SEXT-1	SEXT-2
	1287.1	1126.0	1090.3	919.81	552.71	552.23

ENGINE OIL	ENILT	SNILT	OILP	MANIFOLD PRESSURE = 10.499
	134.21	-30.502	58.166	

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.196
	5.0117	1200.5	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	101.60	100.47	97.998	100.51

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	88.351	4.2288	53.268	2817.3

CELL TEMP. = 73.111 HEATER TEMP = 114.35 COOLER TEMP = 113.09

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NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDET REC 04/09/76 21:29:31.183 FAC SEX15 PGM C003 RDG 3190  
 LEANOUT 25 BTDC I & T 100 DEG HUM = 60 % 3/4 T OPEN MODE = 7.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.360 RATED HP. = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	100.24	29.347	18.249	73.002	1.8854	14.421	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	73.423	5.7408	44.821	3.9801	6.9607	6.1242	
COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	95.157	-0.094928	0.83304	0.00000	60.071	83.859	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	60.071	28.729	180.79	4.1516	0.80782		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.095350	0.092949	1.4231	596.94	600.96	6.5590	0.74549
WET CORRECTION FACTOR = 0.83827		EXHAUST MOLE. WT. = 26.538		EXHAUST DENSITY = 0.068713		EXHAUST FLOW RATE = 1191.1	
MEASURED CONC.	PART PER MILLION WET		PER CENT				453
	HC PPM	NOX PPM	CO DRY	CO2 DRY	C2 DRY		
	42436.	4.2874	9.89970	6.84110	4.2860		
CORRECTED CONC. TO WET BASIS			8.2986	5.7347	3.5929		
EMISSION RATE	HC	NOX	CO				
	1.8147	0.00060773	7.1764				
EMISSION MASS/MODE	0.030244	1.0129E-05	0.11961				
EMISSION MASS/RATED HP	0.00018903	6.3305E-08	0.00074755				
MODE EMIS./STD. CYCLE %	9.9488	0.0042203	1.7799				
CAL. FUEL AIR RATIO = 0.099897		MEAS. FUEL AIR RATIO = 0.095350		DIFF MEAS. & CAL. F/A PERCENT = 4.7696			
CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4			
	223.17	255.29	223.52	240.56			
EXT GAS TEMP DEG. F	FXT-1	FXT-2	FXT-3	EXT-4	SEXT-1	SEXT-2	
	526.94	891.15	593.15	669.06	448.18	446.26	
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 13.671			
	130.71	-101.04	48.437				
DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 30.070				
	5.6598	597.66					
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2			
	101.75	100.24	89.120	100.92			
ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW			
	89.460	4.2467	53.316	2820.4			
CELL TEMP. = 73.423	HEATER TEMP = 110.96		COOLER TEMP = 110.06				

NASA-LEWIS PRELIMINARY DATA 04/09/76 GADDEFI REC 04/09/76 21:41:50.603 FAC SEX15 PGM C003 RDG 3192  
 LEANOUT 25 BTDC I & T 100 DEG HUM = 60 % NEUTRAL MODE = 1.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.360 RATED HP. = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	98.955	29.360	14.943	59.818	1.5505	14.422	
CCMR. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	72.168	5.7798	44.854	6.5877	5.5235	6.1572	
COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	DEL-HUM	DEW-POINT	
	93.934	-0.084134	0.81643	0.00000	62.666	83.969	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	62.666	10.881	181.44	4.1665	0.77964		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.092339	0.090006	1.3782	609.96	609.48	6.2006	0.72013
WET CORRECTION FACTOR = 0.83046		EXHAUST MOLE. WT. = 26.749		EXHAUST DENSITY = 0.069259		EXHAUST FLOW RATE = 965.83	
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	CO DRY		
	33779.	5.0635	9.43560	8.08990	3.2991		
CORRECTED CONC. TO WET BASIS			7.8360	6.7183	2.7398		
EMISSION RATE	HC	NOX	CO				
	1.1712	0.00058197	5.4945				
EMISSION MASS/MODE	0.019521	9.6994E-06	0.091575				
EMISSION MASS/RATED HP	0.00012200	6.0621E-08	0.00057234				
MODE EMIS./STD. CYCLE %	6.4213	0.0040414	1.3627				
CAL. FUEL AIR RATIO = 0.095842		MEAS. FUEL AIR RATIO = 0.092339		DIFF MEAS. & CAL. F/A PERCENT = 3.7940			
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	247.24	266.95	242.45	753.66			
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	1473.2	816.96	623.41	626.38	539.06	537.31	
ENGINE OIL	EOILT	SOILT	OLLP	MANIFOLD PRESSURE = 12.386			
	138.41	12.556	44.248				
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.213				
	3.9316	508.58					
INDUCTION AIR	IAIRT1	IAIRT2	IAIRT1	IAIRT2			
	100.60	98.955	167.66	100.49			
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW			
	98.325	4.3009	53.214	2841.0			
CELL TEMP. = 72.204	HEATER TEMP = 113.24		COOLER TEMP = 111.23				

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NASA-LEWIS PPELIMINARY DATA 04/09/76 CADDEII REC 04/09/76 21:44:16.994 FAC SEX15 PGM C003 RDG 3193  
 LEANCUT 25 BTDC I & T 100 DEG HUM = 60 % NEUTRAL MODE = 2.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.360 RATED HP. = 160.00 HC RATIO = 2.1250  
 COMP. AIR TEMP PRESS CFM DRY FLOW VAPOR FLOW PRESS TOTAL  
 100.17 29.361 27.446 109.98 2.8450 14.429  
 COMB. FUEL TEMP PRESS DENSITY TURBO FLOW FLOW TRON FPIP  
 72.658 5.6829 44.841 12.426 11.137 6.1326  
 COOLING AIR TEMP JDEL-HOOD DEL-HOOD FLOW REL-HUM DEW-POINT  
 94.133 -0.081920 0.85016 0.00000 60.322 83.924  
 REL-HUM 1 2 HUMIDITY % H2O VAPOR CORRECTED HP  
 60.322 19.670 131.07 4.1580 0.96095  
 ENG. COND. F/A DRY F/A WET EQU. RATIO RPM-1 RPM-2 TORQUE BHP  
 0.10126 0.098708 1.5114 1199.6 1199.3 3.8837 0.88706  
 WET CORRECTION FACTOR = 0.83682 EXHAUST MILE. WT. = 26.144 EXHAUST DENSITY = 0.067692 EXHAUST FLOW RATE = 1831.3  
 MEASURED CONC. PART PER MILLION WET PER CENT  
 HC PPM NOX PPM CO DRY CO2 DRY O2 DRY  
 18189. 8.4558 11.841 8.60260 0.85688  
 CORRECTED CONC. TO WET BASIS 9.9091 7.1988 0.71705  
 EMISSION RATE HC NOX CO  
 1.1959 0.0018428 13.175  
 EMISSION MASS/MODE 0.21924 0.00033784 2.4153  
 EMISSION MASS/RATED HP 0.0013703 2.1115E-06 0.015096  
 MODE EMIS./STD. CYCLE % 72.120 0.14077 35.943  
 CAL. FUEL AIR RATIO = 0.10002 MEAS. FUEL AIR RATIO = 0.10126 DIFF MEAS. & CAL. F/A PERCENT = -1.2298  
 CYL TEMP DEG.F CYL-1 CYL-2 CYL-3 CYL-4  
 246.93 256.38 244.12 243.65  
 EXT GAS TEMP DEG.F EXT-1 EXT-2 EXT-3 EXT-4 SEXT-1 SEXT-2  
 724.83 1077.4 1287.1 873.40 522.09 520.12  
 ENGINE OIL FOILT SJILT OILP MANIFOLD PRESSURE = 9.9538  
 135.44 -109.95 57.790  
 DYNO COND. TORQUE RPM CYL BACK PRESSURE = 29.293  
 4.6589 1203.9  
 INDUCTION AIR IAIRT1 IAIRT2 TAIRT1 TAIRT2  
 101.36 100.17 184.48 100.24  
 ORIFICE AIR TEMP DELTAP ORFP FLOW  
 88.762 4.2552 53.333 2824.9  
 CELL TEMP. = 73.014 HEATER TEMP = 111.97 COOLER TEMP = 110.13

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NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDELL REC 04/09/76 21:44:39.262 FAC SFX15 PGM C003 RDG 3194

LEANOUT 25 BTDC I & T 100 DEG HUM = 60 % NEUTRAL MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.360 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	100.29	29.371	27.290	109.35	2.8270	14.433

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	72.676	5.6838	44.841	12.507	11.146	6.1470

COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	94.246	-0.091883	0.85265	0.00000	60.083	83.914

RFL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	60.083	43.142	180.96	4.1555	0.84915

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10193	0.099357	1.5213	1198.9	1201.5	3.4337	0.78379

WET CORRECTION FACTOR = 0.83781 EXHAUST MOLE. WT. = 26.101 EXHAUST DENSITY = 0.067581 EXHAUST FLOW RATE = 1824.9

MEASURED CONC.	PART PER MILLION WET	HC PPM	NOX PPM	CO DRY	PER CENT	CO2 DRY	O2 DRY
		17729.	8.3998	11.890	8.70630	0.73867	
CORRECTED CONC. TO WET BASIS				9.9615	7.2942	0.61887	

	HC	NOX	CO
EMISSION RATE	1.1615	0.0018241	13.198
EMISSION MASS/MODE	0.058077	9.1206E-05	0.65988
EMISSION MASS/RATED HP	0.00036298	5.7004E-07	0.0041243
MODE EMIS./STD. CYCLE %	19.104	0.038002	9.8197

CAL. FUEL AIR RATIO = 0.10007 MEAS. FUEL AIR RATIO = 0.10193 DIFF MEAS. & CAL. F/A PERCENT = -1.8247

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	251.04	269.94	248.37	247.52

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1124.2	1084.8	1268.3	981.97	523.19	521.74

ENGINE OIL	EOILT	SOILT	QOILP	MANIFOLD PRESSURE
	135.01	34.946	57.974	9.9391

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	5.4725	1208.8	29.365

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	101.49	100.29	173.84	100.42

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	88.841	4.1928	53.350	2804.2

CELL TEMP. = 73.565 HEATER TEMP = 117.98 COOLER TEMP = 111.08

NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDEIT REC 04/09/76 21:51:01.172 FAC SEX15 PGM C003 RDG 3195

LEANOUT 25 BTDC I & T 100 DEG HUM = 60 % NEUTRAL MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.350 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	100.50	29.350	14.974	59.895	1.5673	14.414

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	76.351	5.7759	44.744	3.9698	5.5445	6.1566

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	96.370	-0.085518	0.83387	0.00000	60.329	84.234

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	60.329	10.905	183.17	4.2062	0.66438

ENG. COND.	E/A DRY	E/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.092571	0.090211	1.3817	612.96	612.72	5.2505	0.61279

WET CORRECTION FACTOR = 0.82642 EXHAUST M/LF. WT. = 26.732 EXHAUST DENSITY = 0.069216 EXHAUST FLOW RATE = 968.08

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	NOX PPM	CO DRY
33025.	4.7705	9.5447
		8.24150
		2.9859
CORRECTED CONC. TO WET BASIS		7.8879
		6.8109
		2.4676

	HC	NOX	CO
EMISSION RATE	1.1478	0.00054956	5.5438
EMISSION MASS/MODE	0.019129	9.1594E-06	0.092397
EMISSION MASS/RATED HP	0.00011956	5.7246E-08	0.00057748
MODE EMIS./STD. CYCLE %	6.2925	0.0038164	1.3749

CAL. FUEL AIR RATIO = 0.096643 MEAS. FUEL AIR RATIO = 0.092571 DIFF MEAS. & CAL. F/A PERCENT = 4.3983

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	241.98	260.21	234.34	248.39

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1063.8	832.27	805.97	963.42	445.02	442.92

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	131.18	396.25	48.617	= 12.422

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	9.0369	606.84	= 29.210

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	101.80	100.50	121.54	100.41

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	89.949	4.2983	53.204	2.835.9

CFLI TEMP. = 78.934 HEATER TEMP = 108.89 COOLER TEMP = 108.16

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NASA-LEWIS PRELIMINARY DATA 04/09/76 CADREII REC 04/09/76 22:04:50.497 FAC SEX15 PGM C003 RDG 3198

LEANOUT 25 BTDC I & T 100 DEG HUM = 60 % 3/4 T CLOSE MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.350 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	99.032	29.354	12.192	48.688	1.2661	14.414

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRCN	FPIP
	75.305	5.8200	44.771	3.9723	4.0294	6.1587

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	95.036	-0.088009	0.84162	0.00000	62.680	84.049

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	62.680	13.431	182.04	4.1802	0.72765

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.082759	0.080662	1.2352	604.92	604.32	5.8339	0.67194

WET CORRECTION FACTOR = 0.81962 EXHAUST MOLE WT. = 27.462 EXHAUST DENSITY = 0.071107 EXHAUST FLOW RATE = 759.19

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	18901.	12.507	6.8399	10.9520	1.9604
CORRECTED CONC. TO WET BASIS			5.6061	8.9763	1.6068

	HC	NOX	CO
EMISSION RATE	0.51517	0.0011299	3.0899
EMISSION MASS/MODE	0.0085861	1.3832E-05	0.051499
EMISSION MASS/RATED HP	5.3663E-05	1.1770E-07	0.00032187
MODE EMIS./STD. CYCLE %	2.8244	0.0078468	0.76635

CAL. FUEL AIR RATIO = 0.084577 MEAS. FUEL AIR RATIO = 0.082759 DIFF MEAS. & CAL. F/A PERCENT = 2.1962

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	235.47	250.04	227.66	235.37

FXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	983.24	757.96	577.22	451.16	503.92	500.93

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE
	136.51	-90.979	44.500	11.250

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	9.6274	592.74	29.732

INDUCTION AIR	IAIPT1	IAIRT2	TAIRT1	TAIRT2
	100.74	99.032	89.091	101.46

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	89.190	4.3128	53.277	2842.6

CILL TEMP. = 73.147 HEATED TEMP = 109.86 COOLER TEMP = 111.07

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NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDEII REC 04/09/76 22:07:35.150 FAC SEX15 PGM C003 RDG 3199

LEANOUT 25 BTDC I & T 100 DEG HUM = 60 % 3/4 T CLOSE MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BARMETRIC PRESSURE = 29.350 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	100.66	29.353	24.378	97.460	2.5264	14.423

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	75.447	5.7063	44.767	3.9737	9.6670	6.1377

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT
	95.452	-0.081090	0.86874	0.00000	59.533	83.974

RFL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	59.533	4.1764	181.46	4.1669	1.7792

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.099189	0.096682	1.4804	1208.3	1207.9	7.1340	1.6413

WET CORRECTION FACTOR = 0.84174 EXHAUST MOLE. WT. = 26.279 EXHAUST DENSITY = 0.068043 EXHAUST FLOW RATE = 1611.5

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	12433.	14.840	11.0380	9.46590	0.55145
CORRECTED CONC. TO WET BASIS			9.2909	7.9678	0.46418

	HC	NOX	CO
EMISSION RATE	0.71932	0.0028460	10.870
EMISSION MASS/MODE	0.13187	0.00052177	1.9929
EMISSION MASS/PATED HP	0.00082422	3.2610E-06	0.012455
MODE EMIS./STD. CYCLE %	43.380	0.21740	29.656

CAL. FUEL AIR RATIO = 0.095019 MEAS. FUEL AIR RATIO = 0.099189 DIFF MEAS. & CAL. F/A PERCENT = -4.2037

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	247.43	259.98	242.86	237.67

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1529.0	1054.1	1067.0	718.08	480.50	478.69

ENGINE OIL	FOILT	SOILT	QILP	MANIFOLD PRESSURE = 9.2663
	132.63	-260.94	58.910	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.251
	1.4905	1206.1	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	102.03	100.66	94.142	101.28

ORIFICE AIR	TEMP	DELTA P	ORFD	FLOW
	89.704	4.2461	53.321	2819.5

CFLT TEMP. = 73.512 HEATER TEMP = 111.31 COOLER TEMP = 111.04

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NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDEII REC 04/09/76 22:07:57.655 FAC SEX15 PGM C003 RDG 3200  
 LEANOUT 25 BTDC I & T 100 DEG HUM = 60 % 3/4 T CLOSE MODE = 6.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.350 RATED HP. = 160.00 HC RATIO = 2.1250  

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	100.46	29.348	24.010	96.094	2.4887	14.422	
COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	75.305	5.7102	44.771	3.9723	9.4269	6.1413	
COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	95.521	-0.090776	0.85850	0.00000	59.831	83.944	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	59.831	5.0105	181.29	4.1630	1.2814		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	RHP
	0.098101	0.095625	1.4642	1209.5	1209.8	5.1338	1.1823
WET CORRECTION FACTOR = 0.83931		EXHAUST MOLE. WT. = 26.351		EXHAUST DENSITY = 0.068230		EXHAUST FLOW RATE = 1583.0	
MEASURED CONC.	PART PER MILLION WET		CO DRY	CO2 DRY	O2 DRY		
	HC PPM	NOX PPM	10.9370	9.57700	0.53115		
	11867.	15.135	9.1798	8.0381	0.44748		
CORRECTED CONC. TO WET BASIS							
EMISSION RATE	HC	NOX	CO				
	0.67442	0.0028510	10.550				
EMISSION MASS/MODE	0.033721	0.00014255	0.52751				
EMISSION MASS/RATED HP	0.00021076	8.9095E-07	0.0032969				
MODE EMIS./STD. CYCLE %	11.092	0.059397	7.8498				
CAL. FUEL AIR RATIO = 0.094437		MEAS. FUEL AIR RATIO = 0.098101		DIFF MEAS. & CAL. F/A PERCENT = -3.7351			
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	252.17	264.04	248.31	242.40			
FXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SFXT-1	SEXT-2	
	473.60	1059.7	1062.7	691.18	481.70	480.11	
ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 9.1547			
	132.25	-25.000	58.790				
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.195				
	4.4644	1211.7					
INDUCTION AIR	TAIPT1	TAIPT2	TAIRT1	TAIRT2			
	101.82	100.46	-75.239	100.64			
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW			
	89.827	4.2672	53.316	2826.1			
CELL TEMP. = 73.716	HEATER TEMP = 106.30		COOLER TEMP = 108.14				

NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDIE REC 04/09/76 22:12:38.365 FAC SEX15 PGM C003 RDG 3201

LEANOUT 25 BTDC I & T 100 DEG HUM = 60 % 3/4 T CLOSE MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.350 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	99.757	29.348	11.782	47.098	1.2139	14.420

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	75.021	5.8170	44.779	3.9747	4.0204	6.1773

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	96.223	-0.088009	0.81588	0.00000	60.823	83.794

RFL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	60.823	50.879	180.41	4.1428	0.17164

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	PPM-1	RPM-2	TORQUE	BHP
	0.085362	0.083218	1.2741	601.50	599.40	1.3835	0.15845

WET CORRECTION FACTOR = 0.83746 EXHAUST MOLE. WT. = 27.262 EXHAUST DENSITY = 0.070588 EXHAUST FLOW RATE = 741.38

MEASURED CONC.	PART PER MILLION WET			PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	18515.	12.156	6.79390	10.8080	2.1958
CORRECTED CONC. TO WET BASIS			5.6996	9.0514	1.8389

	HC	NOX	CO
EMISSION RATE	0.49281	0.0010725	3.0624
EMISSION MASS/MODE	0.0082134	1.7874E-05	0.051040
EMISSION MASS/RATED HP	5.1334E-05	1.1172E-07	0.00031900
MODE EMIS./STD. CYCLE %	2.7018	0.0074477	0.75952

CAL. FUEL AIR RATIO = 0.083463 MEAS. FUEL AIR RATIO = 0.085362 DIFF MEAS. & CAL. F/A PERCENT = -2.2257

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	256.48	267.27	251.81	258.26

FXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SFXT-1	SEXT-2
	1016.8	792.95	812.69	754.22	434.83	432.51

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 11.363
	130.06	203.82	48.377	

DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.272
	6.9055	600.06	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	101.50	99.757	-22.754	101.34

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	90.672	4.2914	53.320	2831.8

CELL TEMP. = 74.338 HEATER TEMP = 153.23 COOLER TEMP = 118.79

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NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDELL REC 04/09/76 22:20:01.381 FAC SEX15 PGM C003 RDG 3202

LEANOUT 25 BTDC I & T 100 DEG HUM = 60 % 1 1/2 T CLD MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.350 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	97.910	29.350	11.512	46.178	1.1928	14.417

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	71.759	5.8527	44.865	3.9823	3.1533	6.1716

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	94.307	-0.078046	0.83830	0.00000	64.443	83.854

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	64.443	25.058	180.81	4.1519	0.71658

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.068285	0.066566	1.0192	594.78	592.26	5.8506	0.66257

WET CORRECTION FACTOR = 0.81969 EXHAUST MOLE. WT. = 28.596 EXHAUST DENSITY = 0.074041 EXHAUST FLOW RATE = 682.38

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	NOX PPM	CO DRY
15285.	24.261	2.58270
		12.6000
CORRECTED CONC. TO WET BASIS		10.328
		2.6175

	HC	NOX	CO
EMISSION RATE	0.37446	0.0019701	1.0488
EMISSION MASS/MODE	0.0062409	3.2835E-05	0.017480
EMISSION MASS/RATED HP	3.9006E-05	2.0522E-07	0.00010925
MODE EMISS./STD. CYCLE %	2.0529	0.013681	0.26011

CAL. FUEL AIR RATIO = 0.070722 MEAS. FUEL AIR RATIO = 0.068285 DIFF MEAS. & CAL. F/A PERCENT = 3.5682

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	294.97	318.86	313.70	328.51

FXT GAS TEMP DEG. F	FXT-1	FXT-2	FXT-3	FXT-4	SEXT-1	SEXT-2
	905.45	899.98	870.47	685.91	608.79	609.39

ENGINE OIL	FOILT	SOILT	OILT	MANIFOLD PRESSURE
	142.36	291.14	46.849	11.791

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE
	7.6328	587.88	29.705

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	99.602	97.910	-26.401	99.256

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	83.727	4.2698	53.374	2829.8

CELL TEMP. = 72.328 HEATER TEMP = 145.35 COOLER TEMP = 104.08

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NASA-LEWIS		PPELIMINARY DATA		04/09/76		CADDEII		REC 04/09/76 22:23:16.025		FAC SEX15		PGM C003		RDG 3203	
LEANOUT 25 9TDC I & T 100 DEG HUM = 60 % 1 1/2 T CLO MODE = 2.0000 NO. SCANS = 5															
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 29.350				RATED HP. = 160.00		HC RATIO = 2.1250			
COMP. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		98.912		29.356		21.192		85.081		2.1944		14.419			
COMP. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		73.325		5.7513		44.823		3.9786		7.3387		6.1497			
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		95.192		-0.083581		0.84826		0.00000		62.436		83.814			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		62.436		0.31803		180.55		4.1460		1.1071					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.086256		0.084087		1.2874		1205.0		1205.5		4.4588		1.0230	
WET CORRECTION FACTOR = 0.82264				EXHAUST MOLE. WT. = 27.194				EXHAUST DENSITY = 0.070412				EXHAUST FLOW RATE = 1343.7			
MEASURED CONC.		PART PER MILLION WET				PER CENT									
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		5305.1		31.765		8.42120		11.3860		0.29127					
CORRECTED CONC. TO WET BASIS						6.9276		9.3664		0.23961					
EMISSION RATE		HC		NOX		CO									
		0.25591		0.0050793		6.7581									
EMISSION MASS/MODE		0.046918		0.00093120		1.2390									
EMISSION MASS/RATED HP		0.00029323		5.8260E-06		0.0077436									
MODE EMISS./STD. CYCLE %		15.433		0.38800		18.437									
CAL. FUEL AIR RATIO = 0.085287				MEAS. FUEL AIR RATIO = 0.086256				DIFF MEAS. & CAL. F/A PERCENT = -1.1234							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		257.31		298.12		278.21		281.00							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		1199.0		1034.3		992.86		764.31		545.92		544.78			
ENGINE OIL		FOILT		SOILT		OILT		MANIFOLD PRESSURE = 8.4787							
		141.57		284.15		56.766									
DYNM COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.455									
		6.1278		1198.5											
INDUCTION AIR		TAIPT1		TAIPT2		TAIRT1		TAIRT2							
		100.29		98.912		-27.698		98.839							
CRITICE AIR		TEMP		DELTA P		DPED		FLOW							
		82.216		4.3206		53.229		2845.0							
CELL TEMP. = 72.560				HEATER TEMP = 153.15				COOLER TEMP = 100.82							

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NASA-LEWIS PRELIMINARY DATA 04/09/76 CADDEII REC 04/09/76 22:23:37.794 FAC SEX15 PGM C003 RDC 3204

LEANOUT 25 BTDC I & T 100 DEG HUM = 60 % 1 1/2 T CLO MODE = 6.0000 NO. SCANS = 4

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.350 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	99.858	29.351	20.971	84.193	2.1768	14.419

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIF
	73.478	5.7546	44.819	3.9774	7.3657	6.1559

COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REF-HUM	DEW-POINT
	95.094	-0.093752	0.84273	0.00000	62.687	83.888

REF-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	62.687	14.976	180.98	4.1560	1.8365

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.087486	0.085281	1.3058	1201.5	1201.6	7.4174	1.6969

WET CORRECTION FACTOR = 0.83025 EXHAUST MOLE. WT. = 27.102 EXHAUST DENSITY = 0.070174 EXHAUST FLOW RATE = 1335.8

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	O2 DRY
	4491.7	33.082	8.24540	11.5560
CORRECTED CONC. TO WET BASIS			6.8458	0.21271

EMISSION RATE	HC	NOX	CO
	0.21539	0.0052586	6.6388
EMISSION MASS/MODE	0.010770	0.00026293	0.33194
EMISSION MASS/RATED HP	6.7311E-05	1.6433E-06	0.0020746
MODE EMISS./STD. CYCLE %	3.5427	0.10955	4.9396

CAL. FUEL AIR RATIO = 0.084492 MEAS. FUEL AIR RATIO = 0.087486 DIFF MEAS. & CAL. F/A PERCENT = -3.4231

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	260.86	299.08	279.75	281.34

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SFXT-1	SEXT-2
	855.28	1036.4	1051.0	637.48	541.50	540.52

ENGINE OIL	FOILT	SOILT	OILP	MANTIFOLD PRESSURE =
	141.12	-161.66	56.751	8.4258

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE =
	0.24302	1191.9	29.473

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	100.27	98.858	139.32	98.833

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	89.364	4.2923	53.279	2835.5

CFL TEMP. = 72.756 HEATER TEMP = 165.28 COOLER TEMP = 108.09

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NASA-LEWIS PRELIMINARY DATA 04/09/76 RADDFII REC 04/09/76 22:28:58.962 FAC SEX15 PGM C003 RDG 3205

LEANOUT 25 BTDC I & T 100 DEG HUM = 60 ± 1 1/2 T CLO MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.350 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	99.274	29.349	12.192	48.633	1.2595	14.420

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIF
	74.950	5.8311	44.781	3.9731	3.6064	6.1719

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	96.050	-0.10268	0.84439	0.00000	62.004	83.939

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	62.004	10.385	181.22	4.1630	0.85911

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.074154	0.072282	1.1068	608.88	606.90	6.8423	0.79325

WET CORRECTION FACTOR = 0.82952 EXHAUST MOLE. WT. = 28.150 EXHAUST DENSITY = 0.072914 EXHAUST FLOW RATE = 733.73

MEASURED CONC.	PART PER MILLION WET	PER CENT			
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	14535.	19.611	3.85440	12.2080	2.6203
CORRECTED CONC. TO WET BASIS			3.1973	10.127	2.1736

	HC	NOX	CO
EMISSION RATE	0.38288	0.0017123	1.7031
EMISSION MASS/MODE	0.0063913	2.8538E-05	0.028386
EMISSION MASS/RATED HP	3.9883E-05	1.7836E-07	0.00017741
MODE EMIS./STD. CYCLE %	2.0991	0.011891	0.42240

CAL. FUEL AIR RATIO = 0.074269 MEAS. FUEL AIR RATIO = 0.074154 DIFF MEAS. & CAL. F/A PERCENT = 0.15465

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	247.09	273.76	261.10	269.53

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1468.2	863.00	751.73	628.58	462.33	460.60

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE
	135.69	362.11	48.073	11.404

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	6.3510	603.06	29.880

INDUCTION AIR	TAIPT1	TAIPT2	TAIRT1	TAIRT2
	101.02	99.274	100.41	102.43

ORIFICE AIR	TFMP	DELTAP	ORFP	FLOW
	90.402	4.2559	53.310	2821.0

CELL TEMP. = 73.521 HEATER TEMP = 174.90 COOLER TEMP = 132.09

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NASA-LEWIS PRELIMINARY DATA 04/12/76 CADDEII REC 04/12/76 17:47:48.315 FAC SEX15 PGM C003 RDG 3209

LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 60 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.430 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	101.78	29.424	221.51	924.11	23.097	14.943

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	67.125	5.3819	44.988	82.867	79.814	6.0426

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	101.41	3.0822	4.0005	10109.	57.589	83.984

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	57.589	47.131	174.96	4.0176	148.25

ENG. COND.	F/A DRY	F/A WET	EQU. PATIO	RPM-1	RPM-2	TORQUE	BHP
	0.086369	0.084263	1.2391	2709.9	2711.3	256.32	132.25

WET CORRECTION FACTOR = 0.82589 EXHAUST MOLE. WT. = 27.186 EXHAUST DENSITY = 0.070390 EXHAUST FLOW RATE = 14590.

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	1989.6	89.599	9.3393	9.5569	0.080608	
CORRECTED CONC. TO WET BASIS			7.7132	7.8929	0.066574	

	HC	NOX	CO
EMISSION RATE	1.0421	0.15557	81.703
EMISSION MASS/MODE	0.0052107	0.00077783	0.40851
EMISSION MASS/RATED HP	3.2567E-05	4.8614E-06	0.0025532
MODE EMIS./STD. CYCLE %	1.7140	0.32409	6.0791

CAL. FUEL AIR RATIO = 0.088521 MEAS. FUEL AIR RATIO = 0.086369 DIFF MEAS. & CAL. F/A PERCENT = 2.4913

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	392.86	405.13	388.07	390.38

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	760.46	1414.1	-273.37	566.05	1285.4	1284.8

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	189.02	249.16	75.315	28.506

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	251.27	2643.7	29.574

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	102.02	101.78	-47.658	98.041

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	79.517	4.5288	53.982	2936.6

CELL TEMP. = 77.926 HEATER TEMP = 162.49 COOLER TEMP = 114.50

NASA-LEWIS		PRELIMINARY DATA		04/12/76	CADDEII	REC 04/12/76 17:53:13.361		FAC SEX15	PGM C003	RDG 3211
LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 60 %				MODE = 5.0000		NO. SCANS = 5				
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.430		RATED HP. = 160.00		HC RATIO = 2.1250		
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL				
	96.708	29.431	121.06	496.07	12.452	14.598				
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP				
	66.292	5.5592	45.010	46.047	44.224	6.0558				
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT				
	97.529	3.0513	3.9402	10053.	65.851	83.389				
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP					
	65.851	42.476	175.72	4.0350	71.934					
ENG. COND.	F/A DRY	F/A WET	FQU. RATIO	RPM-1	RPM-2	TORQUE	BHP			
	0.089149	0.086965	1.3306	2357.8	2359.4	145.63	65.377			
WET CORRECTION FACTOR = 0.83773		EXHAUST MLE. WT. = 26.979		EXHAUST DENSITY = 0.069855		EXHAUST FLOW RATE = 7912.8				
MEASURED CONC.	PART PER MILLION WET		PER CENT							
	HC PPM	NOX PPM	CO DRY	CO2 DRY	CO DRY	O2 DRY				
	2111.1	82.908	9.1901	9.6631	0.099950					
CORRECTED CONC. TO WET BASIS		7.6988		8.0950	0.083731					
EMISSION RATE	HC	NOX	CO							
	0.59970	0.078068	44.227							
EMISSION MASS/MODE	0.059970	0.0078068	4.4227							
EMISSION MASS/RATED HP	0.00037481	4.8792E-05	0.027642							
MODE EMIS./STD. CYCLE %	19.727	3.2528	65.814							
CAL.FUEL AIR RATIO = 0.088058		MEAS. FUEL AIR RATIO = 0.089149		DIFF MEAS.& CAL. F/A PERCENT = -1.2237						
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4						
	345.27	347.42	355.09	357.04						
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2				
	1067.2	1349.8	-162.47	528.73	1156.2	1157.5				
ENGINE OIL	EOILT	SOILT	OIL <sup>2</sup>	MANIFOLD PRESSURE = 20.180						
	188.29	174.88	72.355							
DYND COND.	TORQUE	RPM	CYL.BACK PRESSURE = 29.451							
	150.32	2294.9								
INDUCTION AIR	TAIRT1	TAIPT2	TAIRT1	TAIRT2						
	97.036	96.708	-53.301	94.952						
ORIFICE AIR	TEMP	DEL TAP	ORFP	FLOW						
	77.015	4.5389	53.908	2946.6						
CELL TEMP. = 75.535		HEATER TEMP = 107.68		COOLER TEMP = 103.94						

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NASA-LEWIS PRELIMINARY DATA 04/12/76 CADDEII REC 04/12/76 17:56:39.280 FAC SEX15 PGM C003 RDG 3212

LEANOUT 25 RTDC TO CL APP 100 DEG HUM = 60 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.430 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	98.929	29.437	220.48	921.94	23.169	14.938

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP.
	64.210	5.3909	45.066	80.660	80.063	6.0393

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	98.972	3.0626	3.9529	10073.	63.059	84.139

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	63.059	24.770	175.91	4.0396	148.59

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.086842	0.084713	1.2961	2709.1	2710.4	257.87	133.01

WET CORRECTION FACTOR = 0.82780 EXHAUST MOLE. WT. = 27.150 EXHAUST DENSITY = 0.070298 EXHAUST FLOW RATE = 14583.

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY
	1940.1	82.658	9.3094	9.5895
			7.7063	7.9382
CORRECTED CONC. TO WET BASIS				0.074107
				0.061346

	HC	NOX	CO
EMISSION RATE	1.0157	0.14344	81.589
EMISSION MASS/MODE	0.0050785	0.00071722	0.40795
EMISSION MASS/RATED HP	3.1741E-05	4.4826E-06	0.0025497
MODE EMIS./STD. CYCLE %	1.6706	0.29884	6.0706

CAL. FUEL AIR RATIO = 0.088409 MEAS. FUEL AIR RATIO = 0.086842 DIFF MEAS. & CAL. F/A PERCENT = 1.8042

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	393.99	409.32	398.46	405.52

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	909.85	1410.4	-132.55	672.01	1305.5	1305.0

ENGINE OIL	EOILT	SOILT	OIL <sup>2</sup>	MANIFOLD PRESSURE = 28.352
	188.96	231.97	75.259	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.566
	254.08	2645.5	

INDUCTION AIR	IAIPT1	IAIPT2	TAIRT1	TAIRT2
	99.041	98.929	6.0270	96.484

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	77.590	4.4877	53.953	2929.0

CELL TEMP. = 76.138 HEATER TEMP = 106.71 COOLER TEMP = 108.64



NASA-LEWIS		PRELIMINARY DATA		04/12/76		CADDEII		REC 04/12/76 18:02:58.289		FAC SEX15		PGM C003		RDG 3214	
LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 60 %				MODE = 5.0000		NO. SCANS = 5									
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.430				RATED HP. = 160.00		HC RATIO = 2.1250					
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		98.290		29.423		120.64		494.12		12.515		14.597			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		67.832		5.5590		44.969		47.394		44.056		6.0678			
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		98.894		3.0515		3.9947		10053.		63.295		83.654			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		63.295		63.454		177.29		4.0712		71.468					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.089161		0.086958		1.3308		2354.2		2355.1		144.56		64.801	
WET CORRECTION FACTOR = 0.83654				EXHAUST MOL. WT. = 26.978				EXHAUST DENSITY = 0.069853				EXHAUST FLOW RATE = 7883.6			
MEASURED CONC.		PART PER MILLION WET				PER CENT									
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		2090.7		79.828		9.2106		9.6959		0.052965					
CORRECTED CONC. TO WET BASIS						7.7051		8.1110		0.044308					
		HC		NOX		CO									
EMISSION RATE		0.59171		0.074890		44.100									
EMISSION MASS/MODE		0.059171		0.0074890		4.4100									
EMISSION MASS/RATED HP		0.00036982		4.5806E-05		0.027562									
MODE EMIS./STD. CYCLE %		19.464		3.1204		65.625									
CAL. FUEL AIR RATIO = 0.088214				MEAS. FUEL AIR RATIO = 0.089161				DIFF MEAS. & CAL. F/A PERCENT = -1.0622							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		342.03		352.48		350.83		349.22							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SFXT-1		SEXT-2			
		446.15		1347.0		-41.235		597.01		1148.1		1149.0			
ENGINE OIL		EOILT		SOILT		OILP		MANIFOLD PRESSURE = 20.066							
		188.15		140.48		72.539									
DYNO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.517									
		148.35		2300.0											
INDUCTION AIR		IAIRT1		IAIPT2		TAIRT1		TAIRT2							
		98.635		98.290		-95.877		94.960							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		78.527		4.4922		53.805		2927.9							
CELL TEMP. = 77.210				HEATER TEMP = 107.59				COOLER TEMP = 103.34							

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NASA-LEWIS PRELIMINARY DATA 04/12/76 CADDEII REC 04/12/76 18:07:34.501 FAC SEX15 PGM C003 R0G 3215

LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 60 % MODE = 4.0000 NO. SCANS = 4

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.430 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	99.343	29.418	203.50	848.15	21.465	14.849

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIR
	66.103	5.4339	45.015	74.949	72.581	6.0235

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	99.613	3.1083	3.9358	10157.	62.323	84.163

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	62.323	39.671	177.15	4.0680	130.12

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.085576	0.083464	1.2773	2428.1	2430.2	257.00	118.82

WET CORRECTION FACTOR = 0.81794 EXHAUST MOLE. WT. = 27.246 EXHAUST DENSITY = 0.070546 EXHAUST FLOW RATE = 13355.

MEASURED CONC.	PART PER MILLION WET			PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	2081.0	88.296	9.7938	9.3330	0.066232
CORRECTED CONC. TO WET BASIS			8.0107	7.6338	0.054173

	HC	NOX	CO
EMISSION RATE	0.99776	0.14033	77.674
EMISSION MASS/MODE	0.083147	0.011694	6.4728
EMISSION MASS/RATED HP	0.00051967	7.3090E-05	0.040455
MODE EMIS./STD. CYCLE %	27.351	4.8726	96.321

CAL. FUEL AIR RATIO = 0.089817 MEAS. FUEL AIR RATIO = 0.085576 DIFF MEAS. & CAL. F/A PERCENT = 4.9560

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	367.97	391.13	399.44	399.02

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	378.65	1323.7	-25.706	683.23	1244.6	1244.3

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.553
	188.57	446.47	73.312	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.527
	262.05	2373.6	

INDUCTION AIR	IAIRT1	IAIPT2	TAIRT1	TAIRT2
	99.408	99.343	-36.240	94.844

ORIFICE AIR	TEMP	DELTAP	ORF5	FLOW
	79.303	4.4699	54.314	2918.8

CELL TEMP. = 77.756 HEATER TEMP = 102.02 COOLER TEMP = 101.86

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NASA-LEWIS PRELIMINARY DATA 04/12/76 CADDEII REC 04/12/76 18:10:37.831 FAC SEX15 PGM C003 RDG 3216

LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 60 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.430 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	98.635	29.473	203.72	848.03	21.486	14.843

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	64.812	5.4365	45.050	74.662	72.535	6.1362

COOLING AIR	TEMP	UNEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	98.782	3.0045	3.8151	9966.6	63.714	84.184

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	63.714	70.127	177.35	4.0726	130.05

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.085533	0.083420	1.2766	2429.3	2431.7	256.91	118.83

WET CORRECTION FACTOR = 0.81762 EXHAUST MOLE. WT. = 27.249 EXHAUST DENSITY = 0.070554 EXHAUST FLOW RATE = 13352.

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	2042.9	83.168	9.7997	9.3443	0.060126	
CORRECTED CONC. TO WET BASIS			8.0124	7.6407	0.049160	

	HC	NOX	CO
EMISSION RATE	0.97925	0.13215	77.670
EMISSION MASS/MODE	0.081604	0.011012	6.4725
EMISSION MASS/RATED HP	0.00051003	6.8826E-05	0.040453
MODE EMIS./STD. CYCLE %	26.844	4.5884	96.316

CAL. FUEL AIR RATIO = 0.089809 MEAS. FUEL AIR RATIO = 0.085533 DIFF MEAS. & CAL. F/A PERCENT = 4.9991

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	368.20	388.10	397.91	399.15

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	643.39	1323.5	149.91	687.81	1248.6	1248.4

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.553
	188.75	134.14	73.087	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.628
	256.83	2365.9	

INDUCTION AIR	IAIRT1	IAIPT2	TAIRT1	TAIRT2
	98.782	99.635	-20.332	95.271

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	78.727	4.5127	53.900	2935.1

CFLT TEMP. = 77.068 HEATER TEMP = 110.78 COOLER TEMP = 102.83

NASA-LEWIS PRELIMINARY DATA 04/12/76 CADDEIT REC 04/12/76 18:16:57.563 FAC SEX15 PGM C003 RDG 3217

LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 60 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.420 DATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	98.696	29.409	220.01	920.67	23.357	14.947

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	63.383	5.4113	45.088	78.061	77.753	5.0708

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	98.920	3.1005	3.9978	10143.	64.120	84.439

RFL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	64.120	17.854	177.59	4.0780	150.79

ENG. COND.	F/A DRY	F/A WET	EQ. RATIO	PPM-1	RPM-2	TORQUE	BHP
	0.084452	0.082363	1.2605	2715.8	2716.9	260.73	134.82

WET CORRECTION FACTOR = 0.82810 EXHAUST MOLE. WT. = 27.332 EXHAUST DENSITY = 0.070768 EXHAUST FLOW RATE = 14438.

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	O2 DRY
	1785.8	108.60	8.1272	10.260
CORRECTED CONC. TO WET BASIS			6.7301	8.4962
				0.030563
				0.025309

EMISSION RATE	HC	NOX	CO
	0.92564	0.18659	70.547
EMISSION MASS/MODE	0.0046282	0.00093297	0.35274
EMISSION MASS/RATED HP	2.8926E-05	5.8311E-06	0.0022046
MODE EMIS./STD. CYCLE %	1.5224	0.38874	5.2491

CAL. FUEL AIR RATIO = 0.085413 MEAS. FUEL AIR RATIO = 0.084452 DIFF MEAS. & CAL. F/A PERCENT = 1.1379

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	409.70	433.07	406.99	417.17

EXT GAS TEMP DEG.F	FXT-1	EXT-2	FXT-3	FXT-4	SEXT-1	SEXT-2
	400.08	1444.7	447.75	922.78	1336.1	1335.2

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.492
	189.56	233.10	75.011	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.564
	258.15	2633.8	

INDUCTION AIR	TAIPT1	TAIPT2	TAIRT1	TAIRT2
	98.782	98.696	-57.973	96.157

ORIFICE AIR	TEMP	DELTAP	ORIF	FLOW
	77.281	4.5405	53.369	2946.3

CELL TEMP. = 76.723 HEATER TEMP = 105.76 COOLER TEMP = 101.43

NASA-LEWIS		PRELIMINARY DATA		04/12/76		CADDETT		REC 04/12/76 18:21:17.181		FAC SEX15		PGM C003		RDG 3218	
LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 60 %								MODE = 4.0000		NO. SCANS = 5					
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 29.420				RATED HP. = 160.00		HC RATIO = 2.1250			
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		98.601		29.432		202.97		845.32		21.436		14.850			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		64.578		5.4293		45.056		72.254		70.519		5.0201			
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		98.661		3.0922		3.9939		10128.		63.862		84.224			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		63.862		39.270		177.51		4.0763		131.55					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.083423		0.081359		1.2451		2435.9		2436.9		259.20		120.22	
WET CORRECTION FACTOR = 0.81699				EXHAUST MOLE. WT. = 27.411				EXHAUST DENSITY = 0.070974				EXHAUST FLOW RATE = 13206.			
MEASURED CONC.		PART PER MILLION WET		PER CENT											
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		2033.3		109.46		8.8551		9.8836		0.052205					
CORRECTED CONC. TO WET BASIS						7.2426		8.0748		0.042651					
		HC		NOX		CO									
EMISSION RATE		0.96398		0.17202		69.439									
EMISSION MASS/MODE		0.080331		0.014335		5.7866									
EMISSION MASS/RATED HP		0.00050207		8.9593E-05		0.036166									
MODE EMIS./STD. CYCLE %		26.425		5.9729		86.110									
CAL. FUEL AIR RATIO = 0.087315				MEAS. FUEL AIR RATIO = 0.083423				DIFF MEAS. & CAL. F/A PERCENT = 4.6658							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		372.09		395.30		407.78		412.21							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		386.33		1339.3		141.51		722.89		1276.8		1276.8			
ENGINE OIL		EOILT		SOILT		OILP		MANIFOLD PRESSURE = 28.438							
		189.53		252.73		73.031									
DYNO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.597									
		250.64		2383.1											
INDUCTION AIR		IAIPT1		IAIPT2		TAIRT1		TAIRT2							
		98.661		98.601		29.559		95.194							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		77.944		4.5695		53.926		2953.4							
CFLT TEMP. = 78.033				HEATER TEMP = 118.54				COOLER TEMP = 102.51							

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NASA-LEWIS PRELIMINARY DATA 04/12/76 CADDEII REC 04/12/76 18:24:14.327 FAC SFX15 PGM C003 RDG 3219

LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 60 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.420 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	98.592	29.416	120.21	492.07	12.443	14.593

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	68.109	5.5652	44.962	44.749	42.253	6.1224

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	99.179	3.0742	3.9510	10095.	62.607	83.599

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	62.607	57.356	177.01	4.0648 71.754

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.085869	0.083751	1.2816	2356.7	2359.0	144.95	65.042

WET CORRECTION FACTOR = 0.83199 EXHAUST MOLE. WT. = 27.224 EXHAUST DENSITY = 0.070488 EXHAUST FLOW RATE = 7756.8

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	O2 DRY
	2046.3	96.540	8.3094	10.203
CORRECTED CONC. TO WET BASIS			6.9133	8.4884
				0.067587
				0.056231

EMISSION RATE	HC	NOX	CO
	0.56983	0.089111	38.932
EMISSION MASS/MODE	0.056983	0.0089111	3.8932
EMISSION MASS/RATED HP	0.00035614	5.5695E-05	0.024332
MODE EMIS./STD. CYCLE %	18.744	3.7130	57.934

CAL. FUEL AIR RATIO = 0.085805 MEAS. FUEL AIR RATIO = 0.085869 DIFF MEAS. & CAL. F/A PERCENT = -0.074758

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	343.30	354.78	359.00	358.65

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	936.87	1369.4	505.98	843.53	1168.7	1169.5

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 20.017
	188.37	178.44	72.763	

DYNO COND.	TORQUE	RPM	CYL BACK PRESSURE = 29.471
	137.94	2316.5	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	98.955	98.592	-52.187	95.183

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	78.448	4.4640	53.919	2919.3

CELL TEMP. = 77.360 HEATER TEMP = 111.20 COOLER TEMP = 101.93

NASA-LEWIS PRELIMINARY DATA 04/12/76 CADDEII REC 04/12/76 18:28:09.554 FAC SEX15 PGM C003 RDG 3220

LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 60 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.420 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	99.921	29.421	219.59	919.69	23.376	14.939

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	66.247	5.4140	45.012	78.557	77.705	6.0669

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	100.75	3.0518	3.9369	10054.	61.870	84.479

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	61.870	31.057	177.92	4.0857	151.74

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.084490	0.082396	1.2610	2716.1	2717.6	262.13	135.56

WET CORRECTION FACTOR = 0.82837 EXHAUST MOLE. WT. = 27.329 EXHAUST DENSITY = 0.070760 EXHAUST FLOW RATE = 14425.

MEASURED CONC.	PART PER MILLION WET			PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1751.3	115.72	8.1089	10.335	0.047025
CORRECTED CONC. TO WET BASIS			6.7172	8.5615	0.038954

	HC	NOX	CO
EMISSION RATE	0.90695	0.19865	70.349
EMISSION MASS/MODE	0.0045348	0.00099327	0.35175
EMISSION MASS/RATED HP	2.8342E-05	6.2079E-06	0.0021984
MODE EMIS./STD. CYCLE %	1.4917	0.41386	5.2343

CAL. FUEL AIR RATIO = 0.085192 MEAS. FUEL AIR RATIO = 0.084490 DIFF MEAS. & CAL. F/A PERCENT = 0.93054

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	408.59	424.04	410.03	415.08

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	641.05	1440.8	83.963	773.61	1331.1	1329.6

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	189.32	226.64	74.755	28.372

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	253.52	2661.9	29.611

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIPT2
	100.01	99.921	4.9829	95.340

ORIFICE AIR	TEMP	DELTA P	CRFP	FLOW
	78.978	4.4699	53.850	2919.7

CELL TEMP. = 78.872 HEATER TEMP = 105.47 COOLER TEMP = 99.832

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NASA-LEWIS PRELIMINARY DATA 04/12/76 CADDEII REC 04/12/76 18:38:49.900 FAC SEX15 PGM C003 RDG 3223

LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 60 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.420 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	97.815	29.471	198.88	827.22	20.967	14.821

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	65.583	5.4335	45.029	70.695	68.107	6.0666

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	DEL-HUM	DEW-POINT
	97.996	3.0850	3.8970	10115.	65.246	84.149

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	65.246	40.542	177.42	4.0742	130.18

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	HP
	0.082332	0.080297	1.2288	2431.3	2433.4	257.23	119.08

WET CORRECTION FACTOR = 0.81781 EXHAUST MOLE. WT. = 27.496 EXHAUST DENSITY = 0.071193 EXHAUST FLOW RATE = 12870.

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1869.1	249.48	8.3303	10.215	0.073267
CORRECTED CONC. TO WET BASIS			6.8125	8.3535	0.059918

	HC	NOX	CO
EMISSION RATE	0.86361	0.38211	63.656
EMISSION MASS/MODE	0.071967	0.031842	5.3047
EMISSION MASS/RATED HP	0.00044980	0.00019901	0.033154
MODE EMIS./STD. CYCLE %	23.673	13.268	78.938

CAL. FUEL AIR RATIO = 0.085722 MEAS. FUEL AIR RATIO = 0.082332 DIFF MEAS. & CAL. F/A PERCENT = 4.1170

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	365.06	384.72	413.61	412.52

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	422.40	1304.4	130.69	704.29	1264.3	1263.2

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.122
	188.29	279.57	74.023	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.508
	250.84	2380.4	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	97.892	97.815	-4.4753	94.860

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	77.157	4.5066	53.919	2936.1

CELL TEMP. = 76.741 HEATER TEMP = 104.07 COOLER TEMP = 100.40

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NASA-LEWIS PRELIMINARY DATA 04/12/76 CADDEII REC 04/12/76 18:51:15.083 FAC SEX15 PGM C003 RDG 3224

LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 60 % MCDE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.410 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	100.65	29.443	218.76	913.86	23.263	14.917

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPI/P
	66.175	5.4356	45.313	75.508	73.708	6.1146

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	101.02	3.1025	3.9111	10146.	60.538	84.479

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	60.538	-17.066	178.19	4.0918	150.75

ENG. COND.	F/A DRY	F/A WET	EQV. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.080656	0.078654	1.2038	2705.5	2707.6	261.49	134.70

WET CORRECTION FACTOR = 0.82442 EXHAUST MOLE. WT. = 27.628 EXHAUST DENSITY = 0.071536 EXHAUST FLOW RATE = 14130.

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM	CO DRY
	1582.2	11.029
	138.32	0.017802
	6.8025	0.014676
	5.6081	

CORRECTED CONC. TO WET BASIS

	HC	NOX	CO
EMISSION RATE	0.80260	0.23259	57.532
EMISSION MASS/MODE	0.0040130	0.0011630	0.28766
EMISSION MASS/RATED HP	2.5081E-05	7.2695E-06	0.0017979
MODE EMIS./STD. CYCLE %	1.3201	0.48457	4.2806

CAL. FUEL AIR RATIO = 0.082083 MEAS. FUEL AIR RATIO = 0.080656 DIFF MEAS. & CAL. F/A PERCENT = 1.7689

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	425.05	441.92	423.17	434.40

EXT GAS TEMP DEG. F	FXT-1	EXT-2	FXT-3	EXT-4	SEXT-1	SEXT-2
	568.57	1459.0	566.39	882.56	1375.7	1374.7

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	190.05	147.51	74.503	28.391

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	260.96	2649.2	29.562

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	100.75	100.65	-71.824	95.949

OPTIFICE AIR	TEMP	DELTAP	DRFP	FLOW
	78.987	4.4829	54.016	2923.8

CELL TEMP. = 80.178 HEATER TEMP = 103.01 COOLER TEMP = 99.586

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NASA-LEWIS PRELIMINARY DATA 04/12/76 CADDEII REC 04/12/76 18:59:45.142 FAC SEX15 PGM C003 RDG 3226

LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 60 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.410 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	98.238	29.417	117.38	479.31	12.172	14.585

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	67.975	5.5770	44.965	39.757	38.821	6.1419

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	99.179	2.9823	3.9911	9925.4	63.508	83.709

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	63.508	61.402	177.77	4.0822	69.159

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.080993	0.078987	1.2089	2349.3	2350.8	140.10	62.667

WET CORRECTION FACTOR = 0.82477 EXHAUST MOLE. WT. = 27.601 EXHAUST DENSITY = 0.071467 EXHAUST FLOW RATE = 7420.3

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	O2 DRY
	1798.8	145.83	6.9055	0.055786
CORRECTED CONC. TO WET BASIS			5.6954	9.0856
				0.046010

	HC	NOX	CO
EMISSION RATE	0.47917	0.12877	30.682
EMISSION MASS/MODE	0.047917	0.012877	3.0682
EMISSION MASS/RATED HP	0.00029948	8.0483E-05	0.019176
MODE EMIS./STD. CYCLE %	15.762	5.3656	45.658

CAL. FUEL AIR RATIO = 0.082256 MEAS. FUEL AIR RATIO = 0.080993 DIFF MEAS. & CAL. F/A PERCENT = 1.5590

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	347.71	357.13	361.68	361.30

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1177.4	1397.9	908.10	928.86	1187.4	1188.2

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 19.791
	188.26	269.14	72.263	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.484
	145.79	2317.6	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	98.558	98.238	-4.5905	96.174

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	77.033	4.5000	53.929	2934.4

CFL TEMP. = 77.847 HEATER TEMP = 102.16 COOLER TEMP = 100.97

NASA-LEWIS		PRELIMINARY DATA		04/12/76		CADDEII		REC 04/12/76 19:03:53.266		FAC SEX15		PGM C003		RDG 3227	
LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 60 %				MODE = 4.0000		NO. SCANS = 5									
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.410				RATED HP. = 160.00		HC RATIO = 2.1250					
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		98.730		29.387		198.80		824.72		21.071		14.795			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		66.695		5.4761		45.300		65.712		64.848		6.1887			
COOLING AIR		TEMP		UDEL-HOOD		DFL-HOOD		FLOW		REL-HUM		DEW-POINT			
		98.825		3.1127		3.8557		10165.		63.838		84.334			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		63.838		40.696		178.85		4.1069		130.58					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.078630		0.076671		1.1736		2430.7		2431.9		257.73		119.28	
WET CORRECTION FACTOR = 0.81443				EXHAUST MJLF. WT. = 27.791				EXHAUST DENSITY = 0.071957				EXHAUST FLOW RATE = 12655.			
MEASURED CONC.		PART PER MILLION WET				PER CENT									
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		1695.9		348.21		6.9941		10.961		0.087589					
CORRECTED CONC. TO WET BASIS						5.6961		8.9269		0.071334					
		HC		NOX		CO									
EMISSION RATE		0.77048		0.52441		52.335									
EMISSION MASS/MODE		0.064207		0.043701		4.3613									
EMISSION MASS/RATED HP		0.00040129		0.00027313		0.027258									
MODE EMIS./STD. CYCLE %		21.121		18.209		64.900									
CAL.FUEL AIR RATIO = 0.082311				MEAS. FUEL AIR RATIO = 0.078630				DIFF MEAS.& CAL. F/A PERCENT = 4.6813							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		374.77		396.80		418.09		419.28							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		589.74		1340.5		849.25		1100.7		1293.5		1292.4			
ENGINE OIL		EQILT		SOILT		OIIP		MANIFOLD PRESSURE = 28.321							
		188.88		175.45		73.147									
DYNO COND.		TORQUE		RPM		CYL.BACK PRESSURE = 29.554									
		253.96		2340.2											
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
		98.782		98.730		-19.622		95.185							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		77.705		4.4220		53.983		2908.0							
CELL TEMP. = 78.306				HEATER TEMP = 113.79				COOLER TEMP = 102.10							

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NASA-LEWIS PRELIMINARY DATA 04/12/76 CADDEYI REC 04/12/76 19:11:58.186 FAC SEX15 PGM C003 RDG 3229

LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 60 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.410 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	100.48	29.401	218.65	914.25	23.273	14.924

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	66.310	5.4299	45.010	74.811	73.291	6.0318

COOLING AIR	TEMP	INDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	100.89	3.1060	3.9507	10153.	60.865	84.494

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	60.865	-15.360	178.19	4.0919	151.79

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.080165	0.078175	1.1965	2710.0	2711.5	262.47	135.43

WET CORRECTION FACTOR = 0.82291 EXHAUST MILE. WT. = 27.667 EXHAUST DENSITY = 0.071637 EXHAUST FLOW RATE = 14110.

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	1555.6	145.26	6.7360	11.000	0.029163	
CORRECTED CONC. TO WET BASIS			5.5843	9.0518	0.023998	

	HC	NOX	CO
EMISSION RATE	0.78792	0.24392	57.206
EMISSION MASS/MODE	0.0039399	0.0012196	0.28603
EMISSION MASS/RATED HP	2.4624E-05	7.5224E-06	0.0017877
MODE EMIS./STD. CYCLE %	1.2960	0.50816	4.2564

CAL. FUEL AIR RATIO = 0.082033 MEAS. FUEL AIR RATIO = 0.080165 DIFF MEAS. & CAL. F/A PERCENT = 2.3299

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	425.79	443.42	423.56	431.83

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	787.27	1456.0	596.48	1073.3	1372.0	1370.5

ENGINE OIL	FOILT	SOILT	OIL2	MANIFOLD PRESSURE
	189.91	174.80	74.559	28.454

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	263.65	2648.9	29.602

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	100.53	100.48	-39.003	95.690

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	78.854	4.5285	53.822	2938.3

CELL TEMP. = 80.417 HEATER TEMP = 102.36 COOLFR TEMP = 100.66

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NASA-LEWIS PRELIMINARY DATA 04/12/76 CADDET1 REC 04/12/76 19:18:38.878 FAC SEX15 PGM C003 R0G 3231

LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 60 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BARMETRIC PRESSURE = 29.400 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	97.123	29.387	118.82	485.96	12.342	14.580

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	67.474	5.5749	44.979	41.028	40.003	6.1380

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	98.229	3.0471	3.9543	10045.	65.675	83.699

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	65.675	56.962	177.78	4.0825	71.219

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.082317	0.080278	1.2286	2360.6	2362.3	143.82	64.643

WET CORRECTION FACTOR = 0.83214 EXHAUST MOLE. WT. = 27.497 EXHAUST DENSITY = 0.071197 EXHAUST FLOW RATE = 7550.9

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	1750.9	166.31	6.7510	11.003	0.047205	
CORRECTED CONC. TO WET BASIS			5.6261	9.1560	0.039281	

	HC	NOX	CO
EMISSION RATE	0.47525	0.14963	30.883
EMISSION MASS/MODE	0.047525	0.014963	3.0883
EMISSION MASS/RATED HP	0.00029703	9.3521E-05	0.019302
MODE EMIS./STD. CYCLE %	15.633	6.2347	45.956

CAL. FUEL AIR RATIO = 0.082017 MEAS. FUEL AIR RATIO = 0.082317 DIFF MEAS. & CAL. F/A PERCENT = -0.36378

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	351.25	360.86	365.00	363.52

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	726.77	1406.4	874.69	1034.6	1196.9	1197.8

ENGINE OIL	EOILT	SOILT	DILP	MANIFOLD PRESSURE = 20.014
	188.36	118.83	72.631	

DYNO COMD.	TORQUE	RPM	CYL. BACK PRESSURE = 29.465
	150.68	2324.1	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	97.434	97.123	-59.946	95.029

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	76.572	4.4529	54.051	2920.8

CELL TEMP. = 77.829 HEATER TEMP = 99.776 COOLER TEMP = 97.711

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NASA-LEWIS PRELIMINARY DATA 04/12/76 CADDEII REC 04/12/76 19:21:55.438 FAC SEX15 PGM C003 RDG 3232

LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 60 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.400 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	98.117	29.373	197.92	822.78	20.997	14.824

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	66.462	5.4503	45.006	64.680	64.677	6.0759

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	98.134	3.1052	3.9969	10151.	65.087	84.359

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	65.087	64.816	178.64	4.1022	132.14

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.078608	0.076652	1.1733	2441.2	2443.3	259.83	120.77

WET CORRECTION FACTOR = 0.81642 EXHAUST MOLE. WT. = 27.792 EXHAUST DENSITY = 0.071961 EXHAUST FLOW RATE = 12624.

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	1672.5	403.54	6.8287	10.948	0.074427	
CORRECTED CONC. TO WET BASIS			5.5751	8.9379	0.060764	

	HC	NOX	CO
EMISSION RATE	0.75798	0.60623	51.096
EMISSION MASS/MODE	0.063165	0.050519	4.2580
EMISSION MASS/RATED HP	0.00039478	0.00031574	0.026613
MODE EMIS./STD. CYCLE %	20.778	21.050	63.364

CAL. FUEL AIR RATIO = 0.082073 MEAS. FUEL AIR RATIO = 0.078608 DIFF MEAS. & CAL. F/A PERCENT = 4.4078

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	374.43	394.43	417.18	413.53

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	846.34	1338.2	836.62	1118.2	1293.5	1291.8

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	188.41	169.76	73.731	28.170

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	251.95	2384.9	29.533

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	98.204	98.117	-5.8362	95.100

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	77.157	4.4738	53.973	2925.9

CELL TEMP. = 78.085 HEATER TEMP = 115.30 COOLER TEMP = 102.72

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NASA-LEWIS		PRELIMINARY DATA		04/12/76		CADDEII		REC 04/12/76 19:37:16.419		FAC SEX15		PGM C003		RDG 3233			
LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 60 %				MODE = 3.0000				NO. SCANS = 5									
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 29.400				RATED HP. = 160.00				HC RATIO = 2.1250			
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL					
		97.702		29.421		238.14		912.71		22.724		14.917					
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP					
		64.686		5.4491		45.053		72.858		70.792		6.1089					
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT					
		98.195		3.1215		3.9576		10181.		64.767		83.814					
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP							
		64.767		45.627		174.28		4.0020		149.62							
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP			
		0.077562		0.075678		1.1576		2708.4		2709.3		260.05		134.11			
WET CORRECTION FACTOR = 0.82331				EXHAUST MOLE. WT. = 27.878				EXHAUST DENSITY = 0.072182				EXHAUST FLOW RATE = 13940.					
MEASURED CONC.		PART PER MILLION WET				PER CENT								483			
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY							
		1428.7		246.42		5.7139		11.564		0.061806							
CORRECTED CONC. TO WET BASIS						4.7042		9.5207		0.050885							
EMISSION RATE		HC		NOX		CO											
		0.71502		0.40879		47.610											
EMISSION MASS/MODE		0.0035751		0.0020439		0.23805											
EMISSION MASS/RATED HP		2.2344E-05		1.2775E-05		0.0014878											
MODE EMIS./STD. CYCLE %		1.1760		0.85164		3.5424											
CAL. FUEL AIR RATIO = 0.079392				MEAS. FUEL AIR RATIO = 0.077562				DIFF MEAS. & CAL. F/A PERCENT = 2.3585									
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4									
		425.79		437.82		427.29		434.10									
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2					
		610.99		1466.3		729.30		1146.5		1378.4		1375.7					
ENGINE OIL		EOILT		SOILT		OILP		MANIFOLD PRF SSURE = 28.381									
		189.96		200.51		74.363											
DYND COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.548											
		253.66		2645.4													
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2									
		97.771		97.702		-35.501		95.536									
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW									
		76.200		4.4907		53.852		2933.8									
CELL TEMP. = 77.351				HEATER TEMP = 119.78				COOLER TEMP = 106.68									

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NASA-LEWIS PRELIMINARY DATA 04/12/76 CADDEII REC 04/12/76 19:43:47.429 FAC SEX15 PGM C003 RDG 3235

LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 60 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.400 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	97.763	29.395	117.83	482.25	11.995	14.578

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	69.074	5.5872	44.936	39.477	37.804	6.1347

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	98.765	3.0421	3.9100	10036.	63.123	83.074

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	63.123	60.440	174.12	3.9983	71.063

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.078390	0.076487	1.1700	2357.1	2357.5	143.77	64.525

WET CORRECTION FACTOR = 0.82966 EXHAUST MOLE. WT. = 27.810 EXHAUST DENSITY = 0.072007 EXHAUST FLOW RATE = 7388.9

MEASURED CONC.	PART PER MILLION WET		PER CENT
	HC PPM	NOX PPM	CO DRY
	1597.9	276.83	5.4822
CORRECTED CONC. TO WET BASIS			CO DRY
			9.6514

EMISSION RATE	HC	NOX	CO
	0.42385	0.24341	24.399
EMISSION MASS/MODE	0.042385	0.024341	2.4399
EMISSION MASS/RATED HP	0.00026491	0.00015213	0.015249
MODE EMIS./STD. CYCLE %	13.942	10.142	36.308

CAL. FUEL AIR RATIO = 0.078880 MEAS. FUEL AIR RATIO = 0.078390 DIFF MEAS. & CAL. F/A PERCENT = 0.62509

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	355.17	364.80	370.50	366.38

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	837.37	407.44	1085.4	1110.8	1211.9	1212.6

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 19.876
	188.63	180.70	72.067	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.495
	146.02	2305.4	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	98.074	97.763	-25.930	95.061

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	77.298	4.4979	53.976	2933.0

CELL TEMP. = 78.324 HEATER TEMP = 100.92 COOLER TEMP = 101.28

NASA-LEWIS PRELIMINARY DATA 04/12/76 CADDEII REC 04/12/76 19:51:00.589 FAC SEX15 PGM C003 RDG 3237

LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 60 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.400 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	99.265	29.410	196.86	818.51	20.452	14.812

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	67.849	5.4755	44.969	64.315	61.761	6.1128

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	99.628	3.0773	3.9491	10100.	61.553	83.704

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	61.553	73.447	174.91	4.0166	131.82

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	RHP
	0.075456	0.073616	1.1262	2439.8	2441.3	259.33	120.47

WET CORRECTION FACTOR = 0.81640 EXHAUST MOLE. WT. = 28.051 EXHAUST DENSITY = 0.072632 EXHAUST FLOW RATE = 12401.

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	1500.8	609.60	5.5705	11.523	0.092369
CORRECTED CONC. TO WET BASIS			4.5478	9.4074	0.075411

	HC	NOX	CO
EMISSION RATE	0.66818	0.89961	40.945
EMISSION MASS/MODE	0.055682	0.074968	3.4121
EMISSION MASS/RATED HP	0.00034801	0.00046855	0.021325
MODE EMIS./STD. CYCLE %	18.316	31.237	50.775

CAL. FUEL AIR RATIO = 0.079115 MEAS. FUEL AIR RATIO = 0.075456 DIFF MEAS. & CAL. F/A PERCENT = 4.8496

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	387.92	407.34	430.46	430.49

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	746.09	-384.24	830.61	1171.1	1328.1	1326.6

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.204
	188.59	250.32	73.907	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.502
	258.76	2377.4	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	99.352	99.265	-45.415	95.029

ORIFICE AIR	TEMP	DELTAP	ORF <sup>2</sup>	FLOW
	78.421	4.5057	53.871	2932.4

CELL TEMP. = 79.737 HEATER TEMP = 91.718 COOLER TEMP = 99.674

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NASA-LEWIS PRELIMINARY DATA 04/12/76 CADDEII REC 04/12/76 19:47:25.042 FAC SEX15 PGM C003 RDG 3236

LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 60 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.400 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	99.162	29.422	197.41	819.33	20.495	14.801

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPI/P
	67.885	5.4695	44.968	64.662	61.983	6.1050

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	99.058	3.0540	4.0526	10058.	61.766	83.714

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	61.766	53.433	175.10	4.0210	132.13

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.075651	0.073805	1.1291	2439.7	2440.6	259.97	120.76

WET CORRECTION FACTOR = 0.81749 EXHAUST MOLE. WT. = 28.035 EXHAUST DENSITY = 0.072589 EXHAUST FLOW RATE = 12423.

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	O2 DRY
	1505.2	636.68	5.5416	0.10593
CORRECTED CONC. TO WET BASIS			4.5302	0.086597

	HC	NOX	CO
EMISSION RATE	0.67134	0.94126	40.860
EMISSION MASS/MODE	0.055945	0.078438	3.4050
EMISSION MASS/RATED HP	0.00034965	0.00049024	0.021281
MODE EMIS./STD. CYCLE %	18.403	32.683	50.669

CAL. FUEL AIR RATIO = 0.078969 MEAS. FUEL AIR RATIO = 0.075651 DIFF MEAS. & CAL. F/A PERCENT = 4.3862

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	383.35	402.64	423.29	418.15

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	424.70	-454.00	830.48	1131.4	1318.1	1316.4

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.234
	188.31	248.34	73.847	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.523
	250.22	2354.5	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	99.300	99.162	38.625	95.609

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	77.856	4.4488	53.912	2916.1

CELL TEMP. = 79.376 HEATED TEMP = 113.00 COOLER TEMP = 104.96

NASA-LEWIS PRELIMINARY DATA 04/12/76 CADDEII REC 04/12/76 19:54:32.169 FAC SEX15 PGM C003 RDG 3238

LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 60 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.400 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	99.188	29.404	118.49	485.14	12.089	14.578

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	70.957	5.5941	44.886	38.518	37.498	6.1179

COOLING AIR	TEMP	UDEL-HOOD	DFL-HOOD	FLOW	RFL-HUM	DEW-POINT
	99.938	2.9882	3.9009	9936.2	60.565	83.129

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	60.565	52.777	174.43	4.0056 72.558

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.077293	0.075413	1.1536	2358.2	2359.5	146.53	65.793

WET CORRECTION FACTOR = 0.82842 EXHAUST MOLE. WT. = 27.900 EXHAUST DENSITY = 0.072239 EXHAUST FLOW RATE = 7402.2

MEASURED CONC.	PART PER MILLION WET	PEP CENT
	HC PPM NOX PPM CO DRY CO2 DRY O2 DRY	
	1566.8 302.91 5.1629 11.763 0.11253	
CORRECTED CONC. TO WET BASIS		9.7451 0.093224

	HC	NOX	CO
EMISSION RATE	0.41635	0.26682	22.985
EMISSION MASS/MODE	0.041635	0.026682	2.2985
EMISSION MASS/RATED HP	0.00026022	0.00016676	0.014366
MODE EMIS./STD. CYCLE %	13.696	11.118	34.204

CAL. FUEL AIR RATIO = 0.078136 MEAS. FUEL AIR RATIO = 0.077293 DIFF MEAS. & CAL. F/A PERCENT = 1.0910

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	353.57	366.90	371.15	365.54

EXT GAS TEMP DEG.F	FXT-1	EXT-2	EXT-3	FXT-4	SEXT-1	SEXT-2
	429.79	-454.00	846.20	1055.9	1207.3	1207.8

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 19.955
	187.97	62.933	72.183	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.529
	138.40	2353.4	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	99.533	99.188	10.445	94.795

ORIFICE AIR	TEMP	DELTAP	ORIF	FLOW
	78.907	4.5010	53.857	2929.6

CELL TEMP. = 80.117 HEATER TEMP = 111.26 COOLER TEMP = 101.13

NASA-LEWIS PRELIMINARY DATA 04/12/76 CADDEII REC 04/12/76 20:02:22.514 FAC SEX15 PGM C003 R0G 3239

LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 60 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.400 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	98.393	29.396	217.84	910.47	22.837	14.911

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	65.099	5.4452	45.042	71.128	70.486	6.0891

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	98.791	3.0728	3.9347	10092.	63.853	84.024

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	63.853	13.393	175.58	4.0319	150.75

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.077417	0.075522	1.1555	2702.0	2703.3	262.13	134.86

WET CORRECTION FACTOR = 0.82183 EXHAUST MOLE. WT. = 27.889 EXHAUST DENSITY = 0.072212 EXHAUST FLOW RATE = 13900.

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1453.6	205.86	5.7209	11.547	0.022542
CORRECTED CONC. TO WET BASIS			4.7015	9.4895	0.018526

EMISSION RATE	HC	NOX	CO
	0.72541	0.34053	47.447
EMISSION MASS/MODE	0.0036271	0.0017026	0.23724
EMISSION MASS/RATED HP	2.2669E-05	1.0641E-05	0.0014827
MODE EMIS./STD. CYCLE %	1.1931	0.70943	3.5303

CAL. FUEL AIR RATIO = 0.079574 MEAS. FUEL AIR RATIO = 0.077417 DIFF MEAS. & CAL. F/A PERCENT = 2.7862

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	428.32	439.64	429.98	437.09

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	747.83	-358.07	379.42	1036.5	1390.3	1388.5

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.398
	190.00	133.42	74.075	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.560
	257.49	2638.0	

INDUCTION AIR	IAIPT1	IAIRT2	TAIPT1	TAIRT2
	98.471	98.393	-9.0973	95.733

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	76.811	4.4748	53.980	2927.1

CELL TEMP. = 77.484 HEATER TEMP = 112.40 COOLER TEMP = 101.62

NASA-LEWIS PRELIMINARY DATA 04/12/76 CADDEII REC 04/12/76 20:11:29.053 FAC SEX15 PGM C003 RDG 3240

LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 60 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.400 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	99.697	29.410	217.15	908.78	22.739	14.922

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	67.223	5.4842	44.985	67.481	65.535	6.0720

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	100.46	3.0787	4.0412	10103.	61.288	83.974

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	61.288	-14.471	175.15	4.0221	149.29

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.072113	0.070353	1.0763	2699.1	2700.3	259.68	133.45

WET CORRECTION FACTOR = 0.82004 EXHAUST MOLE. WT. = 28.334 EXHAUST DENSITY = 0.073363 EXHAUST FLOW RATE = 13590.

MEASURED CONC.	PART PER MILLION WET			PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1227.2	541.05	3.6407	12.556	0.045805
CORRECTED CONC. TO WET BASIS			2.9856	10.296	0.037562

	HC	NOX	CO
EMISSION RATE	0.59877	0.87505	29.458
EMISSION MASS/MODE	0.0029939	0.0043752	0.14729
EMISSION MASS/RATED HP	1.8712E-05	2.7345E-05	0.00092057
MODE EMIS./STD. CYCLE %	0.98482	1.9230	2.1918

CAL. FUEL AIR RATIO = 0.074889 MEAS. FUEL AIR RATIO = 0.072113 DIFF MEAS. & CAL. F/A PERCENT = 3.8498

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	436.29	445.72	437.98	446.03

EXT GAS TEMP DEG.F	FXT-1	FXT-2	EXT-3	EXT-4	SFXT-1	SEXT-2
	671.25	-178.78	440.29	1051.1	1425.8	1422.9

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE
	190.00	201.98	74.055	= 28.496

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	252.45	2644.3	= 29.534

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	99.740	99.697	-29.040	95.464

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	78.315	4.5337	53.868	2941.4

CELL TEMP. = 79.146 HEATER TEMP = 99.957 COOLER TEMP = 102.15



NASA-LEWIS PRELIMINARY DATA 04/12/76 CADDEII REC 04/12/76 20:28:30.097 FAC SEX15 PGM C003 RDG 3244

LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 60 % MCDE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.390 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	98.592	29.379	120.38	491.79	12.338	14.579

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	70.038	5.5908	44.310	37.713	36.037	6.0927

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	99.542	3.0108	3.9582	9978.4	62.074	83.334

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	62.074	56.184	175.62	4.0329	71.982

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.073276	0.071483	1.0937	2355.0	2356.4	145.59	65.282

WET CORRECTION FACTOR = 0.83312 EXHAUST MOLE. WT. = 28.235 EXHAUST DENSITY = 0.073106 EXHAUST FLOW RATE = 7388.8

MEASURED CONC.	PART PER MILLION WET			PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1208.0	501.45	3.2861	12.532	0.22280
CORRECTED CONC. TO WET BASIS			2.7377	10.441	0.18562

	HC	NOX	CO
EMISSION RATE	0.32044	0.44091	14.686
EMISSION MASS/MODE	0.032044	0.044091	1.4686
EMISSION MASS/RATED HP	0.00020027	0.00027557	0.0091786
MODE EMIS./STD. CYCLE %	10.541	18.371	21.854

CAL. FUEL AIR RATIO = 0.073637 MEAS. FUEL AIR RATIO = 0.073276 DIFF MEAS. & CAL. F/A PERCENT = 0.49188

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	362.97	368.60	378.90	376.24

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SFXT-1	SFXT-2
	734.81	181.53	966.09	1132.3	1265.0	1265.4

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 20.305
	188.29	215.37	72.027	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.535
	139.35	2269.5	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	98.946	98.592	-70.725	95.922

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	77.723	4.5140	53.882	2936.9

CELL TEMP. = 78.740 HEATER TEMP = 95.037 COOLER TEMP = 95.993

NASA-LEWIS PRELIMINARY DATA 04/12/76 CADDEII REC 04/12/76 20:44:25.621 FAC SEX15 PGM C003 RDG 3247

LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 60 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.390 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	97.987	29.335	217.76	911.31	22.826	14.924

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW IRON	FPIP
	66.426	5.4797	45.307	67.521	65.791	6.0483

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	98.635	3.0299	3.9067	10013.	64.613	84.009

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	64.613	23.958	175.33	4.0262	151.81

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.072193	0.070429	1.0775	2708.8	2709.7	262.79	135.54

WET CORRECTION FACTOR = 0.82107 EXHAUST WTE. WT. = 28.327 EXHAUST DENSITY = 0.073345 EXHAUST FLOW RATE = 13633.

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM	CO2 DRY
	NOX PPM	O2 DRY
	CO DRY	
	1237.0	12.520
	621.56	0.060986
	3.6294	0.050074
	2.9800	
CORRECTED CONC. TO WET BASIS		

	HC	NOX	CO
EMISSION RATE	0.60544	1.0084	29.495
EMISSION MASS/MODE	0.0030272	0.0050420	0.14748
EMISSION MASS/RATED HP	1.8920E-05	3.1512E-05	0.00092172
MODE EMIS./STD. CYCLE %	0.99579	2.1008	2.1946

CAL.FUEL AIR RATIO = 0.074843 MEAS. FUEL AIR RATIO = 0.072193 DIFF MEAS.& CAL. F/A PERCENT = 3.6707

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	425.84	437.57	433.59	439.08

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1126.9	-454.00	350.59	978.95	1421.7	1418.5

ENGINE OIL	FOILT	SOILT	OIL <sup>2</sup>	MANIFOLD PRESSURE = 28.464
	189.52	211.00	74.703	

DYND COND.	TORQUE	RPM	CYL.BACK PRESSURE = 29.554
	261.22	2670.2	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	98.065	97.987	-9.1665	95.552

ORIFICE AIR	TEMP	DEL TAP	ORFP	FLOW
	76.820	4.4672	53.911	2924.7

CELL TEMP. = 77.679 HEATER TEMP = 90.170 COOLER TEMP = 97.367

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NASA-LEWIS PRELIMINARY DATA 04/12/76 CADDE11 REC 04/12/76 21:05:03.815 FAC SEX15 PGM C003 RDG 3251

LEANOUT 25 BTDC TO CL APP 100 DEG HUM = 60 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.390 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	96.984	29.393	120.43	492.56	12.390	14.578

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	69.065	5.5947	44.936	37.720	35.863	6.0609

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	97.676	2.9491	3.9574	9863.3	65.340	83.409

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	65.340	61.640	176.08	4.0434	73.201

ENG. COND.	F/A DRY	F/A WET	EQ. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.072809	0.071022	1.0867	2360.6	2361.7	148.00	66.519

WET CORRECTION FACTOR = 0.83408 EXHAUST MOLE. WT. = 28.274 EXHAUST DENSITY = 0.073209 EXHAUST FLOW RATE = 7387.2

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1187.4	537.55	3.0860	12.634	0.29475
CORRECTED CONC. TO WET BASIS			2.5740	10.537	0.24584

	HC	NOX	CO
EMISSION RATE	0.31490	0.47255	13.804
EMISSION MASS/MODE	0.031490	0.047255	1.3804
EMISSION MASS/RATED HP	0.00019681	0.00029534	0.0086277
MODE EMIS./STD. CYCLE %	10.359	19.690	20.542

CAL. FUEL AIR RATIO = 0.072967 MEAS. FUEL AIR RATIO = 0.072809 DIFF MEAS. & CAL. F/A PERCENT = 0.21678

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	359.35	365.67	376.69	371.03

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	493.44	-454.00	887.24	1013.8	1266.5	1267.5

ENGINE OIL	ETILT	SDILT	OILP	MANIFOLD PRESSURE = 20.245
	188.38	244.73	72.155	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.496
	145.71	2318.3	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	97.348	96.984	-73.624	95.198

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	76.856	4.5018	53.850	2935.5

CELL TEMP. = 77.484 HEATER TEMP = 103.47 COOLER TEMP = 98.116

NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDELI REC 04/13/76 10:34:36.053 FAC SEX15 PGM C003 RDG 3260  
 LEANOUT TO CL APP 25 BTDC --80 DEG HUM=0% MODE = 3.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.360 RATED HP. = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS. TOTAL	
	80.602	29.376	214.34	965.70	0.25461	14.908	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	71.046	5.4164	44.884	82.097	80.363	6.0596	
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	81.721	3.2375	4.1641	10389.	1.2210	-14.621	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	1.2210	80.968	1.8456	0.042381	155.31		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.083217	0.083195	1.2420	2695.9	2697.0	289.15	148.43

 WET CORRECTION FACTOR = 0.84384 EXHAUST MOLE. WT. = 27.427 EXHAUST DENSITY = 0.071015 EXHAUST FLOW RATE = 14733.  

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1548.8	295.50	8.1229	13.952	0.12097
CORRECTED CONC. TO WET BASIS			6.8544	11.774	0.10208

	HC	NOX	CO
EMISSION RATE	0.81920	0.51811	73.320
EMISSION MASS/MODE	0.0040960	0.0025905	0.36660
EMISSION MASS/RATED HP	2.5600E-05	1.6191E-05	0.0022912
MODE FMIS./STD. CYCLE %	1.3474	1.0794	5.4553

 CAL. FUEL AIR RATIO = 0.080917 MEAS. FUEL AIR RATIO = 0.083217 DIFF MEAS. & CAL. F/A PERCENT = -2.7633  

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4		
	415.04	436.38	410.62	417.01		
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	190.57	-454.00	-3.5413	76.387	1301.8	1294.1
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.276		
	157.19	239.66	74.591			
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.501			
	282.87	2615.7				
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2		
	80.540	80.607	-44.259	76.018		
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW		
	80.681	0.040304	53.314	164.84		
CELL TEMP. =	78.041	HEATER TEMP =	87.812	COOLER TEMP =	84.966	

NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDELL REC 04/13/76 10:37:57.864 FAC SEX15 PGM C003 RDG 3261

LEANOUT TO CL APP 25 RTDC --80 DEG HUM=0% MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BARMETRIC PRESSURE = 29.360 RATED HP. = 160.00 HC RATIO= 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	77.882	29.388	175.22	780.46	0.20936	14.738

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	67.286	5.4827	44.984	63.293	62.730	6.1230

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	78.899	3.2217	4.1336	10361.	1.3427	-14.531

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	1.3427	70.571	1.8778	0.043120 122.63

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.080376	0.080355	1.1996	2431.6	2433.2	259.32	120.06

WET CORRECTION FACTOR = 0.83665 EXHAUST MOLE. WT. = 27.650 EXHAUST DENSITY = 0.071594 EXHAUST FLOW RATE = 11780.

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM NOX PPM CO DRY CO2 DRY O2 DRY	
	1624.1 660.31 7.4015 14.478 0.15718	
CORRECTED CONC. TO WET BASIS		6.1925 12.113 0.13150

	HC	NOX	CO
EMISSION RATE	0.68684	0.92566	52.962
EMISSION MASS/MODE	0.057237	0.077138	4.4135
EMISSION MASS/RATED HP	0.00035773	0.00048211	0.027584
MODE EMISS./STD. CYCLE %	18.828	32.141	65.677

CAL. FUEL AIR RATIO = 0.079432 MEAS. FUEL AIR RATIO = 0.080376 DIFF MEAS. & CAL. F/A PERCENT = -1.1748

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	374.80	386.75	412.29	410.88

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1012.7	-376.52	511.68	579.50	1266.9	1263.1

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 26.809
	173.69	203.22	73.727	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.517
	266.19	2356.5	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	77.820	77.882	-73.591	76.025

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	78.068	2.0352	53.346	1999.6

CELL TEMP. = 75.961 HEATER TEMP = 87.168 COOLER TEMP = 84.089

NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDEII REC 04/13/76 10:41:57.580 FAC SEX15 PGM C003 RDG 3262

LEANOUT TO CL APP 25 BTDC --80 DEG HUM=0% MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.360 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	78.139	29.358	108.60	477.85	0.12417	14.544

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	69.637	5.5548	44.921	43.361	41.839	6.1194

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	78.925	3.2569	4.1206	10424.	1.2728	-15.221

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	1.2728	68.083	1.8190	0.041770	66.643

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.087558	0.087535	1.3068	2354.5	2355.8	145.16	65.078

WET CORRECTION F-TR = 0.85370 EXHAUST MOLE. WT. = 27.097 EXHAUST DENSITY = 0.070160 EXHAUST FLOW RATE = 7408.9

MEASURED CONC.	PART PER MILLION WET	CO DRY	PER CENT	O2 DRY
	HC PPM	NOX PPM	CO2 DRY	
	2115.7	189.52	12.949	0.16274
CORRECTED CONC. TO WET BASIS		7.9611	11.055	0.13893

	HC	NOX	CO
EMISSION RATE	0.56274	0.16709	42.822
EMISSION MASS/MODE	0.056274	0.016709	4.2822
EMISSION MASS/RATED HP	0.00035171	0.00010443	0.026764
MODE EMLS./STD. CYCLE	18.511	6.9621	63.723

CAL. FUEL AIR RATIO = 0.083660 MEAS. FUEL AIR RATIO = 0.087558 DIFF MEAS. & CAL. F/A PERCENT = -4.4522

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	329.06	338.91	339.48	338.11

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1061.3	-454.00	50.640	451.78	1114.3	1114.8

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.659
	187.46	198.92	72.927	

DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.404
	141.60	2303.4	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	78.192	78.139	-63.118	75.490

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	78.713	0.086308	53.477	295.68

CELL TEMP. = 76.599 HEATER TEMP = 92.863 COOLER TEMP = 83.230

NASA-LEWIS		PRELIMINARY DATA		04/13/76	CADDELL	REC 04/13/76 10:47:18.851	FAC SEX15	PGM C003	RDG 3263
LEANOUT TO CL APP 25 RTDC --80 DEG HUM=0%				MODE = 3.0000		NO. SCANS = 5			
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.360		RATED HP. = 160.00		HC RATIO = 2.1250	
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL			
	79.004	29.370	213.53	963.16	0.26847	14.907			
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP			
	67.975	5.4146	44.965	82.805	80.474	6.0690			
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT			
	80.602	3.2962	4.1981	10493.	1.3600	-13.755			
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP				
	1.3600	38.128	1.9512	0.044805	154.30				
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP		
	0.083552	0.083529	1.2470	2693.5	2695.1	287.95	147.68		
WET CORRECTION FACTOR = 0.84443		EXHAUST MOLE. WT. = 27.401		EXHAUST DENSITY = 0.070948		EXHAUST FLOW RATE = 14713.			
MEASURED CONC.	PART PER MILLION WET		PER CENT						
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY				
	1588.0	316.91	8.17990	13.953	0.094970				
CORRECTED CONC. TO WET BASIS			6.9074	11.782	0.084418				
EMISSION RATE	HC	NOX	CO						
	0.83879	0.55489	73.785						
EMISSION MASS/MODE	0.0041940	0.0027744	0.36893						
EMISSION MASS/RATED HP	2.6212E-05	1.7340E-05	0.0023058						
MODE EMIS./STD. CYCLE %	1.3796	1.1560	5.4900						
CAL. FUEL AIR RATIO = 0.081073		MEAS. FUEL AIR RATIO = 0.083552		DIFF MEAS. & CAL. F/A PERCENT = -2.9655					
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4					
	406.22	420.21	409.71	408.30					
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2			
	1820.2	-219.45	460.72	805.82	1311.4	1306.8			
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.341					
	187.86	211.88	74.315						
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.510						
	293.57	2603.0							
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2					
	78.925	79.004	-39.921	75.359					
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW					
	79.755	4.9293	53.626	3051.4					
CELL TEMP. = 77.528	HEATER TEMP = 97.332		COOLER TEMP = 83.451						

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NASA-LEWIS		PRELIMINARY DATA		04/13/76		CADDEII		RLC 04/13/76 10:50:21.953		FAC SEX15		PGM C003		RDG 3264	
LEANDUT TO CL APP. 25 BTDC --80 DEG HUM=0%				MODE = 4.0000				NO. SCANS = 5							
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.360				RATED HP. = 160.00				HC RATIO = 2.1250			
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		79.799		29.406		174.64		777.53		0.22013		14.728			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		68.520		5.4809		44.951		64.105		62.556		6.0993			
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		81.016		3.2441		4.2289		10401.		1.3296		-13.700			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		1.3296		38.266		1.9918		0.045508		122.85					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.080455		0.080433		1.2008		2430.4		2431.3		259.36		120.02	
WET CORRECTION FACTOR = 0.83671				EXHAUST MOLE. WT. = 27.644				EXHAUST DENSITY = 0.071577				EXHAUST FLOW RATE = 11739.			
MEASURED CONC.		PART PER MILLION WET				PER CENT									
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		1565.9		654.39		7.3562		14.608		0.12691					
CORRECTED CONC. TO WET BASIS						6.1550		12.222		0.10619					
EMISSION RATE		HC		NOX		CO									
		0.65994		0.91420		52.459									
EMISSION MASS/MODE		0.054995		0.076183		4.3716									
EMISSION MASS/RATED HP		0.00034372		0.00047614		0.027323									
MODE EMIS./STD. CYCLE %		18.090		31.743		65.054									
CAL. FUEL AIR RATIO = 0.079333				MEAS. FUEL AIR RATIO = 0.080455				DIFF MEAS. & CAL. F/A PERCENT = -1.3945							
CYL TEMP DEG. F		CYL-1		CYL-2		CYL-3		CYL-4							
		380.70		392.12		418.92		415.19							
EXT GAS TEMP DEG. F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		1521.3		-339.34		485.74		891.32		1277.3		1275.2			
ENGINE OIL		EOILT		SOILT		OILP		MANIFOLD PRESSURE = 26.901							
		188.11		180.89		73.095									
DVNO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.468									
		271.78		2373.2											
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
		79.764		79.799		-11.802		75.872							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		80.099		1.0361		53.363		1438.9							
CELL TEMP. = 78.757				HEATER TEMP = 100.04				COOLER TEMP = 87.480							

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NASA-LEWIS		PRELIMINARY DATA		04/13/76	CADDELL	REC 04/13/76 10:53:58.168		FAC SEX15	PGM C003	RDG 3265
LEANOUT TO CL APP 25 BTDC --80 DEG HUM=0%						MODE = 5.0000		NO. SCANS = 5		
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.360		RATED HP. = 160.00		HC RATIO = 2.1250		
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL				
	80.725	29.353	108.33	475.50	0.12988	14.536				
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP				
	71.358	5.5530	44.875	43.522	41.644	6.0894				
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT				
	81.721	3.1215	4.1110	10181.	1.2283	-14.465				
REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP						
	1.2283	56.286	1.9120	0.043906		67.762				
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP			
	0.087579	0.087555	1.3072	2351.3	2352.2	147.36	65.975			
WET CORRECTION FACTOR = 0.85280		EXHAUST MOLE. WT. = 27.095		EXHAUST DENSITY = 0.070156		EXHAUST FLOW RATE = 7373.3				
MEASURED CONC.	PART PER MILLION WET		PER CENT							
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY					
	2142.6	178.26	9.3758	12.902	0.12607					
CORRECTED CONC. TO WET BASIS			7.9957	11.003	0.10751					
EMISSION RATE	HC	NOX	CO							
	0.56715	0.15641	42.801							
EMISSION MASS/MODE	0.056715	0.015641	4.2801							
EMISSION MASS/RATED HP	0.00035447	9.7754E-05	0.026750							
MODE EMIS./STD. CYCLE %	18.656	6.5169	63.691							
CAL. FUEL AIR RATIO = 0.083905		MEAS. FUEL AIR RATIO = 0.087579		DIFF MEAS. & CAL. F/A PERCENT = -4.1958						
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4						
	332.62	340.86	344.55	341.68						
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2				
	1287.3	-62.775	288.52	780.42	1125.7	1126.7				
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.604						
	186.97	256.13	72.771							
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.405							
	141.31	2290.3								
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2						
	80.752	80.725	14.722	76.429						
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW						
	80.787	2.0192	53.339	1987.2						
CELL TEMP. = 79.658	HEATER TEMP = 93.713		COOLER TEMP = 87.754							

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NASA-LEWIS		PRELIMINARY DATA		04/13/76	CADDELL	REC 04/13/76 11:01:05.064		FAC SEX15	PGM C003	RDG 3266
LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=0%				MODE = 3.0000		NO. SCANS =				
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.360		RATED HP = 160.00		HC RATIO = 2.1250		
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL				
	78.492	29.351	212.54	956.48	0.28121	14.897				
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP				
	66.641	5.4347	45.001	78.588	77.081	6.0219				
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT				
	80.319	2.9956	3.8245	9950.1	1.4578	-12.920				
REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP						
	1.4578	16.280	2.0580	0.047259		153.67				
ENG. COND.	F/A DRY	F/A WET	FQU. RATIO	RPM-1	RPM-2	TORQUE	BHP			
	0.080588	0.080564	1.2028	2693.8	2695.5	286.65	147.03			
WET CORRECTION FACTOR = 0.83927		EXHAUST MOLE. WT. = 27.634		EXHAUST DENSITY = 0.071550		EXHAUST FLOW RATE = 14449.				
MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	CO2 DRY	NO2 DRY				
	HC PPM	NOX PPM	6.99670	14.935	0.058866					
	1338.8	369.54	5.8721	12.534	0.049404					
CORRECTED CONC. TO WET BASIS				CO						
		HC	NOX	CO						
EMISSION RATE		0.69449	0.63540	61.599						
EMISSION MASS/MODE		0.0034724	0.0031770	0.30799						
EMISSION MASS/RATED HP		2.1703E-05	1.9856E-05	0.0019250						
MODE EMISS./STD. CYCLE %		1.1423	1.3238	4.5833						
CAL. FUEL AIR RATIO = 0.078694		MEAS. FUEL AIR RATIO = 0.080588		DIFF MEAS. & CAL. F/A PERCENT = -2.3499						
CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4						
	427.29	439.47	426.15	428.33						
EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2				
	1425.8	-454.00	650.25	943.59	1349.1	1344.9				
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.342						
	188.76	185.18	73.823							
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.510							
	292.89	2632.8								
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2						
	78.413	78.492	13.199	76.233						
ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW						
	78.545	1.0484	53.391	1449.3						
CELL TEMP. =	77.882	HEATER TEMP = 92.215		COOLER TEMP = 88.250						

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NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDEII REC 04/13/76 11:04:35.475 FAC SEX15 PGM C003 RDG 3267

LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=0% MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.360 RATE HP. = 160.00 HC RATIO = 2.1250

COND. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	78.669	29.303	174.56	777.68	0.22586	14.730

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	67.751	5.4656	44.971	61.107	61.989	6.0324

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	80.522	2.9859	3.8785	9932.1	1.4157	-13.295

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	1.4157	53.087	2.0330	0.046694	123.23

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.079710	0.079687	1.1897	2431.3	2432.2	260.39	120.54

WET CORRECTION FACTOR = 0.83960 EXHAUST MOLE. WT. = 27.704 EXHAUST DENSITY = 0.071731 EXHAUST FLOW RATE = 11708.

MEASURED CONC.	PART PER MILLION WET	NOX PPM	CO DRY	PER CENT CO2 DRY	O2 DRY
	1498.7	792.48	6.48670	15.344	0.10695
CORRECTED CONC. TO WET BASIS			5.4463	12.883	0.089796

EMISSION RATE	HC	NOX	CO
	0.63000	1.1042	46.297
EMISSION MASS/MODE	0.052500	0.092017	3.8581
EMISSION MASS/RATED HP	0.00032812	0.00057511	0.024113
MODE EMISS./STD. CYCLE %	17.270	38.340	57.412

CAL. FUEL AIR RATIO = 0.077662 MEAS. FUEL AIR RATIO = 0.079710 DIFF MEAS. & CAL. F/A PERCENT = -2.5696

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	390.11	403.79	425.04	422.39

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	689.47	-454.00	704.38	999.13	1305.0	1303.3

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	188.72	248.69	72.715	26.900

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	250.61	2358.2	29.409

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	78.616	78.669	-95.355	75.573

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	79.261	1.0458	53.384	1446.6

CELL TEMP. = 79.013 HEATER TEMP = 91.702 COOLER TEMP = 86.383

500

NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDEII REC 04/13/76 11:08:00.745 FAC SEX15 PGM C003 RDG 3268

LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=0% MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BARGOMETRIC PRESSURE = 29.360 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	79.464	29.352	107.39	471.79	0.13396	14.536

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	70.805	5.5577	44.890	42.205	40.042	6.0882

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	80.787	2.9729	3.8638	9907.9	1.3307	-13.860

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	1.3307	46.663	1.9876	0.045643	66.231

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.084873	0.084849	1.2668	2350.9	2352.8	144.26	64.572

WET CORRECTION FACTOR = 0.84739 EXHAUST MOLE. WT. = 27.299 EXHAUST DENSITY = 0.070685 EXHAUST FLOW RATE = 7242.9

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY
	1964.5	241.42	8.45330	13.848
CORRECTED CONC. TO WET BASIS			7.1532	11.734

EMISSION RATE	HC	NOX	CO
	0.51081	0.20809	37.667
EMISSION MASS/MODE	0.051081	0.020809	3.7667
EMISSION MASS/RATED HP	0.00031926	0.00013005	0.023542
MODE EMIS./STD. CYCLE %	16.803	8.5702	56.052

CAL. FUEL AIR RATIO = 0.081674 MEAS. FUEL AIR RATIO = 0.084873 DIFF MEAS. & CAL. F/A PERCENT = -3.7687

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	340.34	350.05	352.53	352.35

EXT GAS TEMP DEG. F	FXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	834.89	-454.00	653.61	862.54	1152.4	1154.0

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.636
	187.46	214.33	72.791	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.429
	137.09	2301.4	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	79.473	79.464	-36.501	75.988

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	79.728	1.0352	53.247	1438.8

CELL TEMP. = 79.561 HEATER TEMP = 97.746 COOLER TEMP = 87.852

NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDEII REC 04/13/76 11:12:38.920 FAC SEX15 PGM C003 R0G 3269

LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=02 MCDE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BARMETRIC PRESSURE = 29.360 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	79.896	29.381	212.69	959.02	0.29697	14.908

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	69.163	5.4401	44.934	79.570	77.216	6.0882

COOLING AIR	TEMP	UNEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	81.949	2.9536	3.9673	9871.6	1.4673	-12.075

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	1.4673	32.507	2.1676	0.049775 154.82

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.080515	0.080490	1.2017	2695.3	2696.4	288.58	148.10

WET CORRECTION FACTOR = 0.83909 EXHAUST MOLE. WT. = 27.539 EXHAUST DENSITY = 0.071565 EXHAUST FLOW RATE = 14483.

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM	CO DRY
	1409.6	15.029
	396.32	0.073587
	6.95210	0.061746
	5.8335	

	HC	NOX	CO
EMISSION RATE	0.73297	0.68308	61.340
EMISSION MASS/MODE	0.0036648	0.0034154	0.30670
EMISSION MASS/RATED HP	2.2905E-05	2.1346E-05	0.0019169
MODE EMIS./STD. CYCLE %	1.2055	1.4231	4.5640

CAL. FUEL AIR RATIO = 0.078559 MEAS. FUEL AIR RATIO = 0.080515 DIFF MEAS. & CAL. F/A PERCENT = -2.4301

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	422.20	446.35	426.51	427.21

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1366.7	-454.00	876.54	1002.8	1350.3	1346.5

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.491
	188.52	185.58	74.227	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.508
	284.74	2596.0	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	79.746	79.896	-50.167	75.543

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	80.575	2.0070	53.296	1981.9

CELL TEMP. = 80.575 HEATER TEMP = 96.851 COOLER TEMP = 86.170

502

NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDE11 REC 04/13/76 11:15:53.352 FAC SEX15 PGM C003 RDG 3270  
 LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=03 MODE = 4.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.360 RATED HP = 160.00 HC RATIO = 2.1250  
 COMB. AIR TEMP 79.817 PRESS 29.367 CFM 174.02 DRY FLOW 773.95 VAPOR FLOW 0.23595 PRESS TOTAL 14.716  
 COMB. FUEL TEMP 69.422 PRESS 5.4770 DENSITY 4.327 TURBO FLOW 63.424 FLOW TRON 61.803 FPIP 6.0738  
 COOLING AIR TEMP 81.615 UDEL-HOOD 3.0225 DEL-HOOD 3.8503 FLOW 9999.9 REL-HUM 1.4298 DEW-POINT -12.535  
 REL-HUM 1 2 HUMIDITY % H2O VAPOR CORRECTED HP  
 1.4298 63.826 2.1340 0.049004 122.89  
 ENG. COND. F/A DRY F/A WET EQU. RATIO RPM-1 RPM-2 TORQUE BHP  
 0.079854 0.079829 1.1918 2431.3 2432.0 259.33 120.05  
 WET CORRECTION FACTOR = 0.84023 EXHAUST MLE. WT. = 27.692 EXHAUST DENSITY = 0.071702 EXHAUST FLOW RATE = 11659.  
 MEASURED CONC. PART PER MILLION WET PER CENT  
 HC PPM NOX PPM CO DRY CO2 DRY O2 DRY  
 1475.7 781.18 6.44530 15.485 0.10635  
 CORRECTED CONC. TO WET BASIS 5.4155 13.011 0.089359  
 EMISSION RATE HC NOX CO  
 0.61770 1.0838 45.841  
 EMISSION MASS/MODE 0.051475 0.090321 3.8201  
 EMISSION MASS/RATED HP 0.00032172 0.00056450 0.023875  
 MODE EMIS./STD. CYCLE % 16.933 37.634 56.846  
 CAL. FUEL AIR RATIO = 0.077512 MEAS. FUEL AIR RATIO = 0.079854 DIFF MEAS. & CAL. F/A PERCENT = -2.9331  
 CYL TEMP DEG.F CYL-1 CYL-2 CYL-3 CYL-4  
 390.93 404.13 424.27 424.59  
 EXT GAS TEMP DEG.F EXT-1 EXT-2 EXT-3 EXT-4 SEXT-1 SEXT-2  
 1314.6 -454.00 1001.8 1134.3 1305.6 1304.3  
 ENGINE OIL EOILT SOILT OILP MANIFOLD PRESSURE = 26.845  
 188.78 173.55 72.887  
 DYNO COND. TORQUE RPM CYL. BACK PRESSURE = 29.480  
 257.94 2347.3  
 INDUCTION AIR TAIRT1 TAIRT2 TAIRT1 TAIRT2  
 79.764 79.817 -61.706 75.998  
 ORIFICE AIR TEMP DELTAP ORFP FLOW  
 80.355 1.9843 53.215 1971.7  
 CIL TEMP. = 80.223 HEATER TEMP = 99.233 COOLER TEMP = 87.162

503



NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDELL REC 04/13/76 11:23:31.369 FAC SEX15 PGM C003 RDG 3272

LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=0% MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. . . . . BAROMETRIC PRESSURE = 29.360 RATED HP. = 160.00 HC RATIO = 2.1253

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	78.360	29.350	212.02	955.55	0.29584	14.901

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	68.046	5.4518	44.964	76.890	73.954	6.1002

COOLING AIR	TEMP	INLET HOOD	DEL HOOD	FLOW	REL-HUM	DEW-POINT
	80.611	2.9577	3.8680	9879.4	1.5423	-12.085

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	1.5423	-10.785	2.1672	0.049766 154.15

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.077394	0.077370	1.1551	2692.8	2694.0	287.73	147.52

WET CORRECTION FACTOR = 0.83414 EXHAUST MOLE. WT. = 27.891 EXHAUST DENSITY = 0.072217 EXHAUST FLOW RATE = 14259.

MEASURED CONC.	PART PER MILLION WET		PER CENT
	HC PPM	NOX PPM	CO DRY
	1309.6	585.70	5.63410
CORRECTED CONC. TO WET BASIS			CO DRY
			13.387

EMISSION RATE	HC	NOX	CO
	0.67043	0.99388	48.653
EMISSION MASS/MODE	0.0033522	0.0049694	0.24327
EMISSION MASS/RATED HP	2.0951E-05	3.1059E-05	0.0015204
MODE EMISS./STD. CYCLE %	1.1027	2.0706	3.6200

CAL. FUEL AIR RATIO = 0.076104 MEAS. FUEL AIR RATIO = 0.077394 DIFF MEAS. & CAL. F/A PERCENT = -1.6664

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	427.68	440.49	433.41	431.38

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	887.86	-454.00	922.96	1104.7	1378.9	1374.7

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.497
	188.79	191.57	74.035	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.486
	290.77	2621.1	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	78.192	78.360	-1.7786	75.570

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	79.367	3.0407	53.481	2414.3

CELL TEMP. = 79.278 HEATER TEMP = 94.672 COOLER TEMP = 84.763

405

NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDET REC 04/13/76 11:26:06:120 FAC SEX15 PGM C003 RDG 3273  
 LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=0% MODE = 4.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.360 RATE) HP. = 160.00 HC RATIO= 2.1250  
 COMB. AIR YEMP 78.713 PRESS 29.335 CFM 174.53 DRY FLOW 778.52 VAPOR FLOW 0.23993 PRESS TOTAL 14.744  
 COMB. FUEL TEMP 69.065 PRESS 5.4773 DENSITY 44.936 TURBO FLOW 60.884 FLOW TRON 59.199 FPIP 6.0546  
 COOLING AIR TEMP 80.813 UDEL-HOOD 2.9513 DEL-HOOD 3.8624 FLOW 9867.4 REL-HUM 1.5015 DEW-POINT -12.330  
 REL-HUM 1 1.5015 2 35.122 HUMIDITY 2.1573 % H2O VAPOR CORRECTED HP 0.049539 123.34  
 ENG. COND. F/A DRY 0.076040 F/A WET 0.076016 EQU. RATIO 1.1349 RPM-1 2431.0 RPM-2 2431.9 TORQUE 260.63 BHP 120.64  
 WFT CORRECTION FACTOR = 0.83138 EXHAUST MOLE. WT. = 28.003 EXHAUST DENSITY = 0.072506 EXHAUST FLOW RATE = 11557.  
 MEASURED CONC. PART PER MILLION WET HC PPM 1324.8 NOX PPM 1108.3 CO DRY 5.2382D PER CENT CO2 DRY 16.356 O2 DRY 0.13283  
 CORRECTED CONC. TO WET BASIS 4.3550 13.598 0.11044  
 EMISSION RATE HC 0.54967 NOX 1.5243 CO 36.540  
 EMISSION MASS/MODE 0.045806 0.12702 3.0450  
 EMISSION MASS/RATED HP 0.00028629 0.00079388 0.019031  
 MODE EMIS./STD. CYCLE % 15.068 52.925 45.313  
 CAL. FUEL AIR RATIO = 0.075267 MEAS. FUEL AIR RATIO = 0.076040 DIFF MEAS. & CAL. F/A PERCENT = -1.0164  
 CYL TEMP DEG.F CYL-1 403.28 CYL-2 415.32 CYL-3 428.67 CYL-4 427.11  
 EXT GAS TEMP DEG.F EXT-1 1719.1 EXT-2 -454.00 EXT-3 842.79 EXT-4 1131.4 SEXT-1 1332.7 SEXT-2 1331.2  
 ENGINE OIL EOILT 188.96 SOILT 141.18 OILP 72.927 MANIFOLD PRESSURE = 26.981  
 DYNO COND. TORQUE 243.46 RPM 2368.8 CYL. BACK PRESSURE = 29.429  
 INDUCTION AIR IAI RT1 78.660 IAI RT2 78.713 IAI RT1 -58.041 IAI RT2 75.396  
 ORIFICE AIR TEMP 79.808 DELTAP 0.074207 ORFP 53.177 FLOW 277.15  
 CELL TEMP. = 79.287 HEATER TEMP = 85.921 COOLER TEMP = 83.797

505

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NASA-LEWIS		PRELIMINARY DATA		04/13/76	CADDELL	REC 04/13/76 11:29:35.165		FAC SEX15	PGM C003	RDG 3274
LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=0%				MODE = 5.0000		NO. SCANS = 5				
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.360		RATED HP. = 160.00		HC RATIO = 2.1250		
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL				
	79.393	29.360	106.24	466.92	0.13649	14.534				
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP				
	72.266	5.5781	44.851	39.541	38.008	6.0819				
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT				
	80.875	2.8589	3.7808	9692.6	1.3728	-13.405				
REL-HUM	1	2	HUMIDITY	2 H2O VAPOR CORRECTED HP						
	1.3728	42.368	2.0462	0.046987		67.073				
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP			
	0.081401	0.081377	1.2149	2351.2	2352.2	146.10	65.405			
WET CORRECTION FACTOR = 0.84241			EXHAUST MOLE. WT. = 27.559		EXHAUST DENSITY = 0.071383		EXHAUST FLOW RATE = 7075.4			
MEASURED CONC.	PART PER MILLION WET		PER CENT							
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY					
	1797.5	372.60	7.04240	14.998	0.11849					
CORRECTED CONC. TO WET BASIS			5.9325	12.634	0.099818					
	HC	NOX	CO							
EMISSION RATE	0.45657	0.31372	30.474							
EMISSION MASS/MODE	0.045657	0.331372	3.0474							
EMISSION MASS/RATED HP	0.00028536	0.00019607	0.019066							
MODE PM10/STD. CYCLE %	15.019	13.072	45.348							
CAL. FUEL AIR RATIO = 0.078743			MEAS. FUEL AIR RATIO = 0.081401		DIFF MEAS. & CAL. F/A PERCENT = -3.2650					
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4						
	347.72	360.11	358.30	357.34						
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2				
	794.85	-454.00	930.45	963.23	1173.4	1175.2				
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.520						
	187.72	175.86	72.707							
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.419							
	137.49	2301.0								
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2						
	79.367	79.393	-105.68	75.680						
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW						
	80.699	1.9863	53.275	1972.0						
CELL TEMP. = 80.434		HEATER TEMP = 97.037		COOLER TEMP = 85.073						

906

NASA-LEWIS		PRELIMINARY DATA		04/13/76		CADDELL		REC 04/13/76 11:36:18.466		FAC SEX15		PGM C003		RDG 3275	
LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=0%								MODE = 3.0000		NO. SCANS = 5					
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 29.350				RATED HP. = 160.00		HC RATIO = 2.1250			
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		80.337		29.339		212.90		958.96		0.30268		14.903			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		71.010		5.4554		44.885		76.574		74.404		6.0858			
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		82.398		2.9298		3.9186		9826.9		1.4738		-11.770			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR CORRECTED HP							
		1.4738		52.285		2.2094		0.050735		154.98					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.077588		0.077564		1.1580		2697.1		2698.5		288.05		147.92	
WET CORRECTION FACTOR = 0.83557				EXHAUST MOLE. WT. = 27.875				EXHAUST DENSITY = 0.072176				EXHAUST FLOW RATE = 14321.			
MEASURED CONC.		PART PER MILLION WET		PER CENT											
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		1290.9		661.79		5.59350		16.150		0.096130					
CORRECTED CONC. TO WET BASIS						4.6738		13.495		0.080323					
EMISSION RATE		HC		NOX		CO									
		0.66372		1.1278		48.595									
EMISSION MASS/MODE		0.0033186		0.0056392		0.24298									
EMISSION MASS/RATED HP		2.0741E-05		3.5245E-05		0.0015186									
MODE EMIS./STD. CYCLE %		1.0916		2.3497		3.6157									
CAL. FUEL AIR RATIO = 0.075931				MEAS. FUEL AIR RATIO = 0.077588				DIFF MEAS. & CAL. F/A PERCENT = -2.1361							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		415.17		436.20		428.24		422.04							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		946.76		-454.00		1026.0		1107.9		1369.6		1365.2			
ENGINE OIL		EOILT		SOILT		OILP		MANIFOLD PRESSURE = 28.454							
		188.05		212.51		74.451									
DYNO COND.		TORQUE		RPM		CYL BACK PRESSURE = 29.484									
		289.86		2627.3											
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
		80.214		80.337		-51.510		75.951							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		81.738		2.0028		53.411		1977.8							
CELL TEMP. = 81.033				HEATER TEMP = 86.130				COOLER TEMP = 83.469							

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NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDELL REC 04/13/76 11:37:04.956 FAC SEX15 PGM C003 RDG 3276  
 LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=0% MODE = 4.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.350 RATE HP = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	79.614	29.347	174.26	775.46	0.24022	14.723
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	70.591	5.4782	44.896	61.502	58.938	6.0099
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	81.835	2.9198	3.8013	9808.1	1.4632	-12.270
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP	
	1.4632	64.186	2.1684	0.049795	123.55	
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE
	0.076004	0.075981	1.1344	2434.2	2435.6	260.48
						RMP
						120.73
WET CORRECTION FACTOR = 0.83169			EXHAUST MOLE. WT. = 28.006		EXHAUST DENSITY = 0.072514	
			EXHAUST FLOW RATE = 11510.			
MEASURED CONC.	PART PER MILLION WET		PER CENT			
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	1328.5	1144.1	5.18970	16.423	0.14961	
CORRECTED CONC. TO WET BASIS			4.3163	13.659	0.12443	
EMISSION RATE	HC	NOX	CO			
	0.54896	1.5671	36.068			
EMISSION MASS/MODE	0.045747	0.13059	3.0057			
EMISSION MASS/RATED HP	0.00028592	0.00081619	0.018785			
MODE EMIS./STD. CYCLE %	15.048	54.412	44.727			
CAL. FUEL AIR RATIO = 0.075129			MEAS. FUEL AIR RATIO = 0.076004		DIFF MEAS. & CAL. F/A PERCENT = -1.1516	
CYL. TEMP. DEG. F	CYL-1	CYL-2	CYL-3	CYL-4		
	400.59	414.25	426.94	427.14		
EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1546.8	454.00	904.83	1172.3	1329.8	1327.6
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 26.849		
	188.78	213.78	72.823			
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.445			
	246.44	2379.7				
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2		
	79.552	79.614	-32.580	75.918		
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW		
	81.262	1.0718	53.524	1461.5		
CELL TEMP. = 80.425	HEATER TEMP = 86.019		COOLER TEMP = 83.832			

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NASA-LEWIS		PRELIMINARY DATA		04/13/76		CADDILL		REC 04/13/76 11:41:38.274		FAC SEX15		PGM C003		RDG 3277	
LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=0%								MODE = 5.0000		NO. SCANS = 5					
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 29.350				RATED HP. = 160.00		HC RATIO = 2.1250			
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		77.979		29.346		106.33		467.40		0.14070		14.537			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		71.581		5.5704		44.870		40.383		38.161		6.1032			
COOLING AIR		TEMP		INLET-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		79.358		2.9151		3.7390		9799.2		1.4813		-12.935			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		1.4813		44.330		2.1271		0.048386		66.709					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.081644		0.081620		1.2186		2353.7		2355.2		145.39		65.158	
WET CORRECTION FACTOR = 0.84261				EXHAUST MOLE. WT. = 27.550				EXHAUST DENSITY = 0.071333				EXHAUST FLOW RATE = 7089.3			
MEASURED CONC.		PART PER MILLION WET				PER CENT									
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		1828.2		372.64		7.17940		14.977		0.15272					
CORRECTED CONC. TO WET BASIS						6.0494		12.620		0.12868					
EMISSION RATE		HC		NOX		CO									
		0.46528		0.31437		31.135									
EMISSION MASS/MODE		0.046528		0.031437		3.1135									
EMISSION MASS/RATED HP		0.00029080		0.00019648		0.019460									
MODE EMIS./STD. CYCLE %		15.305		13.099		46.332									
CAL. FUEL AIR RATIO = 0.078866				MEAS. FUEL AIR RATIO = 0.081644				DIFF MEAS. & CAL. F/A PERCENT = -3.4035							
CYL TEMP DEG. F		CYL-1		CYL-2		CYL-3		CYL-4							
		338.26		351.22		351.34		349.05							
EXT GAS TEMP DEG. F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		1046.1		-454.00		1037.5		908.40		1158.2		1159.4			
ENGINE OIL		EOILT		SOILT		OILP		MANIFOLD PRESSURE = 18.492							
		187.18		184.14		72.655									
DYNO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.447									
		150.06		2294.3											
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
		77.935		77.979		-24.580		75.680							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		79.614		2.0376		53.054		1997.9							
CELL TEMP. = 78.430				HEATER TEMP = 97.050				COOLER TEMP = 84.160							

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NASA-LEWIS	PRELIMINARY DATA	04/13/76	CADDEII	REC 04/13/76 12:54:28.964	FAC SEX15	PGM C003	R0G 3278
LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=03	MODE = 3.0000	NO. SCANS = 5					
ENGINE TIMING = 25.000	DEG.	BAROMETRIC PRESSURE = 29.320	RATED HP. = 160.00	HC RATIO = 2.1250			
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	79.755	29.301	213.52	960.00	0.25047	14.880	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	74.089	5.4398	44.803	73.498	70.546	6.1077	
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT	
	80.998	2.9704	3.9020	9903.2	1.2399	-14.811	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP			
	1.2399	57.198	1.8264	0.041940	156.47		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.073486	0.073466	1.0968	2698.2	2699.3	290.49	149.24
WET CORRECTION FACTOR = 0.82827	EXHAUST MOLE. WT. = 28.217	EXHAUST DENSITY = 0.073060	EXHAUST FLOW RATE = 14108.				
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	1103.8	1127.3	3.8495	17.649	0.14955		
CORRECTED CONC. TO WET BASIS			3.1884	14.618	0.12387		
	HC	NOX	CO				
EMISSION RATE	0.55909	1.8927	32.659				
EMISSION MASS/MODE	0.0027954	0.0094635	0.16329				
EMISSION MASS/RATED HP	1.7471E-05	5.9147E-05	0.0010206				
MODE EMIS./STD. CYCLE %	0.91955	3.9431	2.4300				
CAL. FUEL AIR RATIO = 0.072743	MEAS. FUEL AIR RATIO = 0.073486	DIFF MEAS. & CAL. F/A PERCENT = -1.0106					
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	430.14	443.56	434.85	437.56			
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	901.37	-48.006	871.22	1007.3	1358.3	1358.4	
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.318			
	150.27	224.22	75.596				
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.479				
	294.42	2641.9					
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2			
	79.658	79.755	8.0396	76.124			
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW			
	83.172	2.9639	53.225	2376.5			
CELL TEMP. = 78.766	HEATER TEMP = 84.737	COOLER TEMP = 80.223					

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NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDELL REC 04/13/76 12:57:36.719 FAC SEX15 PGM C003 RDG 3279  
 LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=0% MODE = 4.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BARMETRIC PRESSURE = 29.320 RATE HP. = 160.00 HC RATIO = 2.1250  
 COMB. AIR TEMP 79.949 PRESS 29.281 CFM 179.01 DRY FLOW 797.36 VAPOR FLOW 0.20201 PRESS TOTAL 14.727  
 COMB. FUEL TEMP 73.529 PRESS 5.4818 DENSITY 44.818 TURBO FLOW 57.908 FLOW TRON 57.153 FPIP 6.0483  
 COOLING AIR TEMP 81.333 UDEL-HOOD 2.9870 DEL-HOOD 3.8879 FLOW 9934.2 REL-HUM 1.1840 DEW-POINT -15.416  
 REL-HUM 1 1.1840 2 55.493 HUMIDITY 1.7734 % H2O VAPOR CORRECTED HP 0.040724 123.47  
 ENG. COND. F/A DRY 0.071678 F/A WET 0.071660 EQU. RATIO 1.0698 RPM-1 2433.8 RPM-2 2435.0 TORQUE 260.29 BHP 120.62  
 WET CORRECTION FACTOR = 0.82204 EXHAUST MOLE. WT. = 28.371 EXHAUST DENSITY = 0.073460 EXHAUST FLOW RATE = 11635.  
 MEASURED CONC. PART PER MILLION WET HC PPM 979.40 NOX PPM 1807.8 CO DRY 3.8202 CO2 DRY 17.515 O2 DRY 0.30523  
 CORRECTED CONC. TO WET BASIS 3.1403 14.398 0.25091  
 EMISSION RATE HC 0.40909 NOX 2.5030 CO 26.527  
 EMISSION MASS/MODE 0.034091 0.20858 2.2106  
 EMISSION MASS/RATED HP 0.00021307 0.0013036 0.013816  
 MODE EMIS./STD. CYCLE % 11.214 86.910 32.895  
 CAL. FUEL AIR RATIO = 0.072324 MEAS. FUEL AIR RATIO = 0.071678 DIFF MEAS. & CAL. F/A PERCENT = 0.90108  
 CYL TEMP DEG.F CYL-1 407.83 CYL-2 418.02 CYL-3 421.03 CYL-4 420.48  
 EXT GAS TEMP DEG.F EXT-1 1450.7 EXT-2 -454.00 EXT-3 1021.3 EXT-4 1173.7 SEXT-1 1342.3 SEXT-2 1336.5  
 ENGINE OIL EOILT 164.12 SOILT 255.56 OILP 73.083 MANIFOLD PRESSURE = 27.131  
 DYNO COND. TORQUE 264.53 RPM 2356.4 CYL. BACK PRESSURE = 29.439  
 INDUCTION AIR TAIRT1 79.878 TAIRT2 79.949 TAIRT1 -75.064 TAIRT2 75.601  
 ORIFICE AIR TEMP 83.647 DELTAP 2.0409 ORFP 53.351 FLOW 1992.0  
 CELL TEMP. = 79.622 HEATER TEMP = 83.066 COOLER TEMP = 79.015

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NASA-LE, IS PRELIMINARY DATA 04/13/76 CADDELL REC 04/13/76 13:00:22.790 FAC SEX15 PGM C003 RDG 3280

LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=03 MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BARMETRIC PRESSURE = 29.320 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS. TOTAL
	80.593	29.325	106.65	467.76	0.11231	14.512

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	75.128	5.5929	44.776	38.818	36.289	6.1374

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	81.782	3.0072	3.8320	9971.7	1.0827	-16.431

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	1.0827	49.717	1.6808	0.038596	67.107

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.077579	0.077560	1.1579	2351.3	2352.2	145.97	65.351

WET CORRECTION FACTOR = 0.83924 EXHAUST MOLE. WT. = 27.876 EXHAUST DENSITY = 0.072178 EXHAUST FLOW RATE = 6985.0

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1564.5	710.69	5.1170	16.614	0.15136
CORRECTED CONC. TO WET BASIS			4.2944	13.943	0.12702

	HC	NOX	CO
EMISSION RATE	0.39231	0.59074	21.777
EMISSION MASS/MODE	0.039231	0.059074	2.1777
EMISSION MASS/RATED HP	0.00024519	0.00036921	0.013611
MODE EMIS./STD. CYCLE %	12.905	24.614	32.407

CAL. FUEL AIR RATIO = 0.075032 MEAS. FUEL AIR RATIO = 0.077579 DIFF MEAS. & CAL. F/A PERCENT = -3.2831

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	358.99	363.17	369.78	368.25

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	946.08	-454.00	1107.4	1007.3	1190.1	1190.3

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.632
	177.47	186.50	73.211	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.379
	149.03	2308.4	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	80.593	80.593	-75.593	76.013

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	84.130	2.0264	53.251	1984.4

CELL TEMP. = 80.346 HEATER TEMP = 82.678 COOLER TEMP = 79.921

NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDELL REC 04/13/76 13:14:19.746 FAC SEX15 PGM C003 RDG 3281  
 LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=0% MODE = 3.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.320 RATED HP. = 160.00 HC RATIO = 2.1250  
 COMB. AIR TEMP 80.478 PRESS 29.318 CFM 211.73 DRY FLOW 949.75 VAPOR FLOW 0.27402 PRESS TOTAL 14.869  
 COMB. FUEL TEMP 71.937 PRESS 5.4581 DENSITY 44.860 TURBO FLOW 70.674 FLOW TRON 69.412 FPIP 6.0780  
 COOLING AIR TEMP 82.697 UDEL-HOOD 2.9239 DEL-HOOD 3.9205 FLOW 9815.9 REL-HUM 1.3380 DEW-POINT -13.250  
 REL-HUM 1 1.3380 2 2.088 HUMIDITY 2.0196 % H2O VAPOR CORRECTED HP 0.046377 152.98  
 ENG. COND. F/A DRY 0.073084 F/A WET 0.073063 EQU. RATIO 1.0908 RPM-1 2692.0 RPM-2 2693.5 TORQUE 284.60 BHP 145.88  
 WET CORRECTION FACTOR = 0.82379 EXHAUST MOLE. WT. = 28.251 EXHAUST DENSITY = 0.073148 EXHAUST FLOW RATE = 13936.  
 MEASURED CONC. PART PER MILLION WET HC PPM 1134.1 NOX PPM 902.79 CO DRY 4.0183 PER CENT CO2 DRY 17.454 O2 DRY 0.083328  
 CORRECTED CONC. TO WET BASIS 3.3103 14.378 0.068645  
 EMISSION RATE HC 0.56742 NOX 1.4972 CO 33.493  
 EMISSION MASS/MODE 0.0028371 0.0074861 0.16746  
 EMISSION MASS/RATED HP 1.7732E-05 4.6788E-05 0.0010467  
 MODE EMISS./STD. CYCLE % 0.93326 3.1192 2.4920  
 CAL. FUEL AIR RATIO = 0.073210 MEAS. FUEL AIR RATIO = 0.073084 DIFF MEAS. & CAL. F/A PERCENT = 0.17135  
 CYL TEMP DEG. F. CYL-1 439.39 CYL-2 457.72 CYL-3 443.06 CYL-4 444.42  
 EXT GAS TEMP DEG. F. EXT-1 961.39 EXT-2 -240.33 EXT-3 1289.1 EXT-4 1173.7 SEXT-1 1420.2 SEXT-2 1415.6  
 ENGINE OIL EOILT 188.68 SOILT 228.72 OILP 73.987 MANIFOLD PRESSURE = 28.468  
 DYNO COND. TORQUE 276.58 RPM 2623.8 CYL. BACK PRESSURE = 29.492  
 INDUCTION AIR TAIRT1 80.355 TAIRT2 80.478 TAIRT1 -104.75 TAIRT2 76.979  
 ORIFICE AIR TEMP 83.084 DELTAP 2.0153 DRFP 53.265 FLOW 1981.2  
 CELL TEMP. = 79.773 HEATER TEMP = 82.116 COOLER TEMP = 81.021

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NASA-LEWIS		PRELIMINARY DATA		04/13/76		CADDEII		REC 04/13/76 13:17:24.397		FAC SEX15		PGM C003		RDG 3282	
LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=03								MODE = 4.0000		NO. SCANS = 5					
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 29.310				RATED HP. = 160.00		HC RATIO = 2.1250			
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		81.333		29.275		182.11		808.78		0.23676		14.733			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		72.515		5.4962		44.345		59.851		59.220		6.0945			
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		83.286		2.9815		3.8779		9923.9		1.3082		-13.165			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		1.3082		20.682		2.0492		0.047056		124.13					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.073221		0.073199		1.0928		2437.5		2438.8		260.86		121.07	
WET CORRECTION FACTOR = 0.82986				EXHAUST MILE. WT. = 28.239				EXHAUST DENSITY = 0.073118				EXHAUST FLOW RATE = 11874.			
MEASURED CONC.		PART PER MILLION WET				PER CENT									
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		962.80		1869.9		4.0515		17.261		0.33679					
CORRECTED CONC. TO WET BASIS						3.3522		14.324		0.27949					
		HC		NOX		CO									
EMISSION RATE		0.41043		2.6423		28.985									
EMISSION MASS/MODE		0.034203		0.22019		2.4154									
EMISSION MASS/RATED HP		0.00021377		0.0013762		0.015096									
MODE EMIS./STD. CYCLE %		11.251		91.745		35.944									
CAL. FUEL AIR RATIO = 0.072632				MEAS. FUEL AIR RATIO = 0.073221				DIFF. MEAS. & CAL. F/A PERCENT = -0.80411							
CYL TEMP DEG.		CYL-1		CYL-2		CYL-3		CYL-4							
		438.97		420.03		426.20		424.10							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		1404.7		-454.00		1220.8		1420.4		1376.9		1375.1			
ENGINE OIL		E OILT		S OILT		OILP		MANIFOLD PRESSURE = 27.388							
		188.85		207.36		72.719									
DYN COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.424									
		263.82		2378.3											
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
		81.289		81.333		-45.512		77.397							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		83.559		0.057506		53.230		223.54							
CELL TEMP. = 80.716				HEATER TEMP = 82.109				COOLER TEMP = 81.500							

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NASA-LEWIS		PRELIMINARY DATA		04/13/76	CADDELL	REC 04/13/76 13:20:12.163		FAC SEX15	PGM C003	RDG 3283
LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=0%				MODE = 5.0000		NO. SCANS = 5				
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.310		RATED HP. = 160.00		HC RATIO = 2.1250		
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL				
	82.011	29.311	105.90	462.82	0.12041	14.507				
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP				
	75.012	5.5968	44.779	37.340	35.299	6.1932				
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT				
	83.752	2.9378	3.8181	9842.0	1.1200	-15.241				
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP					
	1.1200	47.903	1.8212	0.041821	67.427					
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP			
	0.076268	0.076249	1.1383	2351.9	2352.8	146.38	65.550			
WET CORRECTION FACTOR = 0.83110		EXHAUST MILE. WT. = 27.984		EXHAUST DENSITY = 0.072457		EXHAUST FLOW RATE = 6876.3				
MEASURED CONC.	PART PER MILLION WET		PER CENT							
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY					
	1485.7	693.81	5.23210	16.537	0.12703					
CORRECTED CONC. TO WET BASIS			4.3484	13.744	0.10558					
EMISSION RATE	HC	NOX	CO							
	0.36677	0.56773	21.708							
EMISSION MASS/MODE	0.036677	0.056773	2.1708							
EMISSION MASS/RATED HP	0.00022923	0.00035483	0.013567							
MODE FMIS./STD. CYCLE %	12.065	23.655	32.304							
CAL.FUEL AIR RATIO = 0.075258		MEAS. FUEL AIR RATIO = 0.076268		DIFF MEAS.& CAL. F/A PERCENT = -1.3245						
CYL TFMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4						
	359.87	364.51	368.76	370.77						
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2				
	1550.6	-454.00	1317.6	1182.7	1221.1	1223.6				
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.578						
	188.04	265.26	72.239							
DYNO COND.	TORQUE	RPM	CYL.BACK PRESSURE = 29.340							
	139.76	2301.5								
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2						
	82.020	82.011	-109.18	77.763						
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW						
	83.963	1.0707	53.287	1457.2						
CELL TEMP. = 81.412	HEATER TEMP = 82.047		COOLER TEMP = 81.909							

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NASA-Lewis PRELIMINARY DATA 04/13/76 CADDEII REC 04/13/76 13:24:42.338 FAC SEX15 PGM C003 RDG 3284

LEANOUT 25 BTDC TO CL APP 80 DEG HUM=0% MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.310 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	80.020	29.301	211.54	946.04	0.24832	14.858

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	70.466	5.4761	44.899	69.285	66.802	6.0546

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	82.249	3.0103	3.8630	9977.4	1.2348	-14.741

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	1.2348	19.690	1.8374	0.042192	152.92

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.070612	0.070593	1.0539	2682.4	2683.5	285.47	145.80

WET CORRECTION FACTOR = 0.82083 EXHAUST MOLE. WT. = 28.463 EXHAUST DENSITY = 0.073698 EXHAUST FLOW RATE = 13746.

MEASURED CONC.	PART PER MILLION WET		PER CENT
	HC PPM	NOX PPM	CO DRY
	1007.8	1605.6	2.80740
CORRECTED CONC. TO WET BASIS			CO DRY
			15.095

EMISSION RATE	HC	NOX	CO
	0.49735	2.5264	22.998
EMISSION MASS/MODE	0.0024867	0.013132	0.11499
EMISSION MASS/RATED HP	1.5542E-05	8.2076E-05	0.00071868
MODE EMIS./STD. CYCLE %	0.81801	5.4717	1.7112

CAL. FUEL AIR RATIO = 0.071140 MFAS. FUEL AIR RATIO = 0.070612 DIFF MEAS. & CAL. F/A PERCENT = 0.74831

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	436.96	451.81	442.02	444.78

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	844.02	-201.85	1324.0	1267.3	1436.5	1431.5

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.421
	188.62	153.67	73.787	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.473
	282.42	2610.0	

INDUCTION AIR	IAIPT1	IAIPT2	TAIRT1	TAIRT2
	79.905	80.020	-54.999	78.220

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	81.439	1.0310	53.361	1433.6

CELL TEMP. = 78.943 HEATER TEMP = 82.026 COOLER TEMP = 82.494

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NASA-LEWIS		PRELIMINARY DATA		04/13/76	CADDEII	REC 04/13/76 13:27:42.926		FAC SEX15	PGM C003	RNG 3285	
LEANOUT 25 BTDC TO CL APP 80 DEG HUM=0%				MODE = 4.0000		NO. SCANS = 5					
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.310		RATED HP. = 160.00		HC RATIO = 2.1250			
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL					
	80.849	29.309	186.29	826.14	0.21570	14.744					
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP					
	71.197	5.4845	44.880	61.625	57.450	6.0417					
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT					
	82.865	3.0100	3.8807	9976.9	1.1862	-14.941					
REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP							
	1.1862	61.274	1.8276	0.041968		124.48					
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP				
	0.069540	0.069521	1.0379	2438.4	2439.6	261.66	121.48				
WET CORRECTION FACTOR = 0.81878		EXHAUST MOLE. WT. = 28.486		EXHAUST DENSITY = 0.073758		EXHAUST FLOW RATE = 11982.					
MEASURED CONC.	PART PER MILLION WET		PER CENT								
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY						
	697.07	2010.9	3.45300	17.518	0.58736						
CORRECTED CONC. TO WET BASIS			2.8272	14.343	0.48091						
EMISSION RATE	HC	NOX	CO								
	0.29986	2.8674	24.595								
EMISSION MASS/MODE	0.024988	0.23895	2.0496								
EMISSION MASS/RATED HP	0.00015618	0.0014934	0.012810								
MODE EMIS./STD CYCLE %	8.2199	99.562	30.500								
CAL. FUEL AIR RATIO = 0.071031		MEAS. FUEL AIR RATIO = 0.069540		DIFF MEAS. & CAL. F/A PERCENT = 2.1445							
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4							
	415.92	426.68	414.70	420.98							
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2					
	1472.9	-454.00	885.78	1298.1	1402.7	1400.3					
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 27.634							
	189.09	184.57	72.851								
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.433								
	267.24	2359.2									
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2							
	80.769	80.849	-59.723	78.591							
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW							
	81.914	2.0179	53.358	1984.5							
CELL TEMP. =	80.205	HEATER TEMP = 81.998		COOLER TEMP = 82.893							

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OF POOR QUALITY

NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDED REC 04/13/76 13:31:03.481 FAC SEX15 PGM C003 RDG 3286

LEANOUT 25 BTDC TO CL APP 80 DEG HUM=0% MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.310 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	81.650	29.303	107.28	467.87	0.12433	14.510

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	74.116	5.6202	44.803	35.528	34.329	6.1026

COOLING AIR	TEMP	IDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	83.436	2.9671	3.7921	9897.0	1.1576	-14.916

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	1.1576	43.992	1.8601	0.042714	66.761

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.073373	0.073354	1.0951	2354.3	2355.6	144.84	64.926

WET CORRECTION FACTOR = 0.83051 EXHAUST MOLE. WT. = 28.226 EXHAUST DENSITY = 0.073085 EXHAUST FLOW RATE = 6873.2

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	1228.5	1091.4	3.5450	17.801	0.16984
CORRECTED CONC. TO WET BASIS			2.9441	14.784	0.14105

	HC	NOX	CO
EMISSION RATE	0.30313	0.89267	14.691
EMISSION MASS/MODE	0.030313	0.089267	1.4691
EMISSION MASS/RATED HP	0.00018946	0.00055792	0.0091819
MODE EMIS./STD. CYCLE %	9.9715	37.195	21.862

CAL. FUEL AIR RATIO = 0.072283 MEAS. FUEL AIR RATIO = 0.073373 DIFF MEAS. & CAL. F/A PERCENT = -1.4863

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	366.71	369.30	372.51	373.68

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1762.6	-454.00	1303.3	1216.5	1251.1	1253.4

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.788
	188.13	90.461	72.203	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.380
	138.02	2338.5	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	81.641	81.650	-79.150	78.966

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	82.425	2.0293	53.258	1988.9

CELL TEMP. = 80.223 HEATER TEMP = 81.970 COOLER TEMP = 83.292

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NASA-LEWIS		PRELIMINARY DATA		04/13/76		CADDY1		REC 04/13/76 13:34:31.244		FAC SEX15		PGM C003		RDG 3287	
LEANOUT 25 BTDC TO CL APP 80 DEG HUM=02								MODE = 3.0000		NO. SCANS = 5					
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 29.310				RATED HP. = 160.00		HC RATIO = 2.1250			
COMP. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		82.609		29.322		212.29		948.59		0.26480		14.875			
COMP. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW YRON		FPIP			
		72.809		5.4809		44.837		68.476		66.829		6.0411			
COOLING AIR		TEMP		INLET-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		84.709		3.0034		3.8104		9964.6		1.2084		-13.765			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR CORRECTED HP							
		1.2084		23.492		1.9541		0.044872		153.39					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.070451		0.070431		1.0515		2694.5		2695.6		284.49		145.95	
WET CORRECTION FACTOR = 0.82087				EXHAUST MOLE. WT. = 28.477				EXHAUST DENSITY = 0.073734				EXHAUST FLOW RATE = 13774.			
MEASURED CONC.		PART PER MILLION WET				PER CENT									
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		1030.8		1669.0		2.7486		18.386		0.14663					
CORRECTED CONC. TO WET BASIS						2.2563		15.092		0.12037					
EMISSION RATE		HC		NOX		CO									
		0.50975		2.7358		22.564									
EMISSION MASS/MODE		0.0025487		0.013679		0.11282									
EMISSION MASS/RATED HP		1.5930E-05		8.5493E-05		0.00070513									
MODE EMISS./STD. CYCLE %		0.83840		5.5995		1.6789									
CAL. FUEL AIR RATIO = 0.071027				MEAS. FUEL AIR RATIO = 0.070451				DIFF MEAS. & CAL. F/A PERCENT = 0.81754							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		424.23		436.37		433.19		429.38							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		1737.4		-311.29		1451.9		1269.8		1427.4		1422.6			
ENGINE OIL		EOILT		SOILT		OILP		MANIFOLD PRESSURE = 28.310							
		188.18		240.42		74.215									
DYNO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.517									
		276.11		2619.6											
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
		82.504		82.609		-108.81		79.271							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		82.970		3.9468		53.206		2735.6							
CELL TEMP. = 80.919				HEATER TEMP = 81.977				COOLER TEMP = 83.699							

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NASA-LEWIS	PRELIMINARY DATA	04/13/76	CADDEII	REC 04/13/76 13:38:07.831	FAC SEX15	PGM C003	RDG 3288
LEANOUT 25 BTDC TO CL APP 80 DEG HUM=08				MODE = 4.0000	NO. SCANS = 5		
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.300		RATED HP. = 160.00		HC RATIO = 2.1250
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	83.612	29.291	185.40	819.44	0.21896	14.724	
COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW FROM	FPIP	
	73.378	5.4974	44.822	59.401	56.952	6.0441	
COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	85.498	2.9691	3.7692	9900.6	1.1086	-14.606	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	1.1086	35.872	1.8705	0.042952	123.08		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.069501	0.069482	1.0373	2430.0	2431.1	258.86	119.77
WET CORRECTION FACTOR = 0.81963		EXHAUST MOLE WT. = 28.490		EXHAUST DENSITY = 0.073767		EXHAUST FLOW RATE = 11893.	
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	672.27	2002.3	3.4809	17.385	0.62958		
CORRECTED CONC. TO WET BASIS			2.8531	16.249	0.51603		
EMISSION RATE	HC	NOX	CO				
	0.28680	2.8315	24.615				
EMISSION MASS/MODE	0.023900	0.23596	2.0512				
EMISSION MASS/RATED HP	0.00014937	0.0014747	0.012820				
MODE EMISS./STD. CYCLE %	7.8618	98.316	30.524				
CAL.FUEL AIR RATIO = 0.070990		MEAS. FUEL AIR RATIO = 0.069501		DIFF MEAS.& CAL. F/A PERCENT = 2.1419			
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	414.25	426.79	411.73	416.91			
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	1235.0	-454.00	960.90	1297.3	1402.7	1399.7	
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 27.589			
	188.75	251.96	72.723				
DYNO COND.	TORQUE	RPM	CYL.BACK PRESSURE = 29.420				
	250.20	2378.7					
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2			
	83.462	83.612	-30.308	79.655			
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW			
	83.506	1.0449	53.295	1440.4			
CELL TEMP. = 82.125		HEATER TEMP = 81.963		COOLER TEMP = 84.125			

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NASA-LEWIS		PRELIMINARY DATA		04/13/76	CADDEII	REC 04/13/76 13:40:55.860	FAC SEX15	PGM C003	RDG 3289
LEANOUT 25 BTDC TO CL APP 80 DEG HUM=0%				MODE = 5.0000		NO. SCANS = 5			
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.300		RATED HP. = 160.00		HC RATIO = 2.1250	
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL			
	84.086	29.300	106.70	464.53	0.11583	14.511			
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP			
	75.121	5.6073	44.750	35.883	34.809	6.1104			
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT			
	85.998	2.9073	3.7492	9784.6	1.0040	-15.876			
REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP					
	1.0040	46.673	1.7454	0.040081		66.047			
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP		
	0.074935	0.074916	1.1184	2350.7	2352.3	143.09	64.043		
WET CORRECTION FACTOR = 0.83611		EXHAUST MOL. WT. = 28.095		EXHAUST DENSITY = 0.072744		EXHAUST FLOW RATE = 6865.9			
MEASURED CONC.	PART PER MILLION WET			PER CENT					
	HC PPM	NOX PPM	CO DRY	CO2 DRY	CO2 DRY				
	1230.2	1044.6	3.67590	17.697	0.16696				
CORRECTED CONC. TO WET BASIS				14.832	0.13993				
EMISSION RATE	HC	NOX	CO						
	0.30323	0.85348	15.357						
EMISSION MASS/MODE	0.030323	0.085348	1.5357						
EMISSION MASS/RATED HP	0.00018952	0.00053343	0.0095980						
MODE FMIS./STD. CYCLE %	9.9747	35.562	22.852						
CAL.FUEL AIR RATIO = 0.072495		MEAS. FUEL AIR RATIO = 0.074935		DIFF MEAS.& CAL. F/A PERCENT = -3.2557					
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4					
	356.58	369.54	371.65	373.70					
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2			
	1844.0	-454.00	1395.5	1173.3	1244.3	1246.8			
ENGINE CIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.687					
	188.04	161.95	72.183						
DYMO COND.	TORQUE	RPM	CYL.BACK PRESSURE = 29.350						
	136.44	2326.1							
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2					
	84.112	84.086	-66.113	79.926					
ORIFICE AIR	TEMP	DELTAP	DRFP	FLOW					
	83.971	2.0450	53.277	1993.3					
CELL TEMP. = 82.460	HEATER TEMP = 81.956		COOLER TEMP = 84.382						

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NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDEII REC 04/13/76 18:15:21.511 FAC SEX15 PGM C003 RDG 3291

LEANOUT 25 BTDC 1 & T 80 DEG. HUM=0% MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	79.596	29.232	18.538	81.134	0.0061212	14.356

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	79.878	5.8071	44.551	3.9599	6.0396	6.1857

COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	81.809	-0.065868	0.80785	0.00000	0.34781	-27.187

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	0.34781	67.333	0.52812	0.012127 0.83255

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.074443	0.074434	1.1110	1196.2	1197.1	3.5837	0.81619

WET CORRECTION FACTOR = 0.85133 EXHAUST MOLE. WT. = 28.136 EXHAUST DENSITY = 0.072852 EXHAUST FLOW RATE = 1196.7

MEASURED CONC.	PART PER MILLION WET		PER CENT
	HC PPM	NOX PPM	CO DRY
	2326.8	66.731	4.7006
CORRECTED CONC. TO WET BASIS			CO DRY
			9.8493

EMISSION RATE	HC	NOX	CO
	0.099962	0.0095027	3.4766
EMISSION MASS/MODE		0.0017422	0.63738
EMISSION MASS/RATED HP	0.00011454	1.0888E-05	0.0039836
MODE EMISS./STD. CYCLE %	6.0284	0.72590	9.4848

CAL. FUEL AIR RATIO = 0.077904 MEAS. FUEL AIR RATIO = 0.074440 DIFF MEAS. & CAL. F/A PERCENT = 4.6531

CYL TEMP. DEG. F.	CYL-1	CYL-2	CYL-3	CYL-4
	258.60	281.99	273.70	274.24

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1404.0	-454.00	-454.00	457.33	586.03	585.20

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 7.7563
	146.29	306.93	57.598	

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.357
	10.182	1187.7	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	79.861	79.596	-93.660	74.415

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	84.402	4.9546	53.314	3045.0

CELL TEMP. = 77.077 HEATER TEMP = 157.84 COOLER TEMP = 84.780

NASA-Lewis		PRELIMINARY DATA		04/13/76		CADDELL		REC 04/13/76 18:15:42.878		FAC SEX15		PGM C003		RDG 3292	
LEANOUT 25 BTDC, I & T 80 DEG. HUM=0%				MODE = 6.0000				NO. SCANS = 5							
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.230				RATED HP. = 160.00		HC RATIO = 2.1250					
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		79.861		29.226		18.566		80.731		0.0071064		14.363			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		79.923		5.8104		44.550		3.9650		6.1206		6.1836			
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		81.826		-0.075001		0.82501		0.00000		0.40247		-26.402			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		0.40247		39.516		0.61619		0.014150		1.3500					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.075815		0.075809		1.1316		1194.5		1194.9		5.8172		1.3231	
WET CORRECTION FACTOR = 0.85781				EXHAUST MOLE. WT. = 28.021				EXHAUST DENSITY = 0.072554				EXHAUST FLOW RATE = 1197.1			
MEASURED CONC.		PART PER MILLION WET				PER CENT		CO2 DRY		O2 DRY					
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		2213.1		66.761		4.6813		11.579		0.096310					
CORRECTED CONC. TO WET BASIS						4.0156		9.9327		0.082615					
EMISSION RATE		HC		NOX		CO									
		0.095114		0.0095108		3.4901									
EMISSION MASS/MODE		0.0047557		0.00047554		0.17451									
EMISSION MASS/RATED HP		2.9723E-05		2.9721E-06		0.0010907									
MODE EMIS./STD. CYCLE %		1.5644		0.19814		2.5968									
CAL. FUEL AIR RATIO = 0.077793				MEAS. FUEL AIR RATIO = 0.075815				DIFF MEAS. & CAL. F/A PERCENT = 2.6091							
CYL TEMP DEG. F		CYL-1		CYL-2		CYL-3		CYL-4							
		261.88		283.52		274.75		274.86							
EXT GAS TEMP DEG. F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		1548.9		-454.00		-454.00		39.389		579.79		579.09			
ENGINE OIL		EOILT		SOILT		OILP		MANIFOLD PRESSURE = 7.7579							
		145.78		-14.641		57.762									
DYNO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.459									
		6.9559		1188.2											
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
		80.134		79.861		-67.496		75.218							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		84.366		1.9897		53.221		1967.0							
CELL TEMP. = 77.104				HEATER TEMP = 163.29				COOLER TEMP = 89.134							

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NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDEII REC 04/13/76 18:20:17.424 FAC SEX15 PGM C003 RDG 3293

LEANOUT 25 BTDC I & T 80 DEG. MIN=0% MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	77.555	29.220	11.907	51.565	0.0037596	14.359

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	77.803	5.8698	44.706	3.9682	3.4263	6.1914

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	78.801	-0.077769	0.81726	0.00000	0.35953	-27.342

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	0.35953	46.399	0.51036	0.011720	0.89109

ENG. CO. ID.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.066447	0.066442	0.99175	613.50	611.34	7.4924	0.87521

WET CORRECTION FACTOR = 0.86355 EXHAUST MOLF. WT. = 28.712 EXHAUST DENSITY = 0.074342 EXHAUST FLOW RATE = 739.76

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	10317.	35.460	1.9596	11.612	2.2674
CORRECTED CONC. TO WET BASIS			1.7009	10.028	1.9580

	HC	NOX	CO
EMISSION RATE	0.27399	0.0031215	0.91347
EMISSION MASS/MODE	0.0045665	5.2026E-05	0.015225
EMISSION MASS/RATED HP	2.8541E-05	3.2516E-07	9.5154E-05
MODE EMIS./STD. CYCLE %	1.5021	0.021677	0.22656

CAL. FUEL AIR RATIO = 0.069638 MEAS. FUEL AIR RATIO = 0.066447 DIFF MEAS. & CAL. F/A PERCENT = 4.8024

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	226.39	255.67	241.06	246.49

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1121.0	-454.00	-454.00	399.77	496.17	494.85

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 11.074
	140.10	320.61	47.865	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 28.694
	5.8830	609.48	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	77.873	77.555	-63.672	77.274

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	81.729	1.0052	53.360	1415.5

CELL TEMP. = 74.240

HEATER TEMP = 151.80

COOLER TEMP = 97.094

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NASA-LEWIS		PRELIMINARY DATA		04/13/76	CADDEII	REC 04/13/76 18:26:43.148	FAC SEX15	PGM C003	RDG 3295
LEANOUT 25 BTDC I & T 80 DEG. HUM=0%				MODE = 1.0000		NO. SCANS = 5			
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.230		RATED HP. = 160.00		HC RATIO = 2.1250	
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL			
	77.979	29.225	11.320	49.262	0.0042362	14.356			
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP			
	76.962	5.8791	44.728	3.9650	3.2223	6.1824			
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT			
	80.143	-0.076385	0.81118	0.00000	0.41807	-26.532			
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP				
	0.41807	44.826	0.60196	0.013823	0.51590				
ENG. COND.	F/A DRY	F/A WET	FQU. RATIO	RPM-1	RPM-2	TORQUE	BHP		
	0.065412	0.065406	0.97630	610.32	610.56	4.3588	0.50652		
WET CORRECTION FACTOR = 0.87674		EXHAUST MOLE. WT. = 28.757		EXHAUST DENSITY = 0.074460		EXHAUST FLOW RATE = 704.92			
MEASURED CONC.	PART PER MILLION WET			PER CENT					
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY				
	12216.	31.613	1.5716	11.228	3.1703				
CORRECTED CONC. TO WET BASIS				1.3779	9.8443	2.7795			
	HC	NOX	CO						
EMISSION RATE	0.30915	0.0026687	0.70516						
EMISSION MASS/MODE	0.0051525	4.4478E-05	0.011753						
EMISSION MASS/RATED HP	3.2203E-05	2.7799E-07	7.3455E-05						
MODE EMIS./STD. CYCLE %	1.6949	0.018532	0.17489						
CAL. FUEL AIR RATIO = 0.066953		MEAS. FUEL AIR RATIO = 0.065412		DIFF MEAS. & CAL. F/A PERCENT = 2.3711					
CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4					
	263.94	293.56	293.10	296.36					
EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2			
	1129.7	-454.00	-450.25	534.25	578.05	577.40			
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 11.291					
	147.94	363.69	46.945						
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 28.993						
	5.5878	607.92							
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2					
	78.236	77.979	-64.104	74.580					
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW					
	82.705	2.9990	53.497	2390.9					
CELL TEMP. = 75.261		HEATER TEMP = 105.45		COOLER TEMP = 76.882					

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NASA-LEWIS		PRELIMINARY DATA		04/13/76	CADDEII	REC 04/13/76 18:27:02.944		FAC SEX15	PGM C003	RDG 3296	
LEANOUT 25 BTDC I & T 80 DEG. HUM=0%				MODE = 1.0000		NO. SCANS = 5					
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.230		RATED HP. = 160.00		HC RATIO = 2.1250			
COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL					
	77.820	29.222	11.139	48.523	0.0039122	14.355					
COMB. FUFL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP					
	77.077	5.8779	44.725	3.9681	3.1803	6.1785					
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT					
	80.055	-0.062824	0.84411	0.00000	0.39402	-26.867					
REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP							
	0.39402	31.639	0.56439	0.012960 0.24064							
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP				
	0.065543	0.065538	0.97825	595.62	596.34	2.0835	0.23629				
WET CORRECTION FACTOR = 0.88306		EXHAUST WOLF. WT. = 28.752		EXHAUST DENSITY = 0.074446		EXHAUST FLOW RATE = 694.55					
MEASURED CONC.	PART PER MILLION WET		PER CENT								
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY						
	12771.	33.267	1.5224	11.141	3.4937						
CORRECTED CONC. TO WET BASIS			1.3267	9.8384	3.0852						
EMISSION RATE	HC	NOX	CO								
	0.31844	0.0027496	0.66898								
EMISSION MASS/MODE	0.0053074	4.5827E-05	0.011150								
EMISSION MASS/RATED HP	3.3171E-05	2.8642E-07	6.9685E-05								
MODE EMIS./STD. CYCLE %	1.7459	0.019094	0.16592								
CAL. FUEL AIR RATIO = 0.066077		MEAS. FUEL AIR RATIO = 0.065543		DIFF MEAS. & CAL. F/A PERCENT = 0.81519							
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4							
	255.48	287.52	276.77	289.50							
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2					
	1845.9	-454.00	-454.00	52.639	569.85	568.85					
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 11.399							
	147.75	4.1944	45.729								
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.517								
	3.1251	590.64									
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2							
	78.130	77.820	-56.497	73.994							
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW							
	82.688	1.0483	53.486	1443.8							
CELL TEMP. = 75.394	HEATER TEMP = 109.92		COOLER TEMP = 77.922								

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NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDEII REC 04/13/76 18:29:46.542 FAC SEX15 PGM C003 RDG 3297  
 LEANOUT 25 BTDC.] & T 80 DEG. HUM=0% MODE = 2.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250  
 COMB. AIR TEMP PRESS CFM DRY FLOW VAPOR FLOW PRESS TOTAL  
 78.625 29.229 18.477 80.355 0.0060340 14.362  
 COMB. FUEL TEMP PRESS DENSITY TURBO FLOW FLOW TRON FPIP  
 78.466 5.8152 44.688 3.9666 6.0276 6.1815  
 COOLING AIR TEMP UDEL-HOOD DEL-HOOD FLOW REL-HUM DEW-POINT  
 80.531 -0.079153 0.83553 0.00000 0.35753 -27.207  
 RFL-HUM 1 2 HUMIDITY % H2O VAPOR CORRECTED HP  
 0.35753 63.300 0.52565 0.012071 1.0929  
 ENG. COND. F/A DRY F/A WET EQU. RATIO RPM-1 RPM-2 TORQUE BHP  
 0.075012 0.075007 1.1196 1202.5 1203.4 4.6838 1.0724  
 WET CORRECTION FACTOR = 0.85477 EXHAUST MLE. WT. = 28.088 EXHAUST DENSITY = 0.072727 EXHAUST FLOW RATE = 1187.8  
 MEASURED CONC. PART PER MILLION WET PER CENT  
 HC PPM NOX PPM CO DRY CO2 DRY O2 DRY  
 2126.3 64.222 4.6251 11.670 0.098930  
 CORRECTED CONC. TO WET BASIS 3.9534 9.9755 0.084562  
 EMISSION RATE HC NOX CO  
 0.090673 0.0090780 3.4093  
 EMISSION MASS/MODE 0.016623 0.3016643 0.62504  
 EMISSION MASS/RATED HP 0.00010390 1.0402E-05 0.0039065  
 MODE EMIS./STD. CYCLE % 5.4682 0.69346 9.3011  
 CAL. FUEL AIR RATIO = 0.077564 MEAS. FUEL AIR RATIO = 0.075012 DIFF MEAS. & CAL. F/A PERCENT = 3.4020  
 CYL TEMP DEG.F CYL-1 CYL-2 CYL-3 CYL-4  
 263.60 286.11 273.31 274.66  
 EXT GAS TEMP DEG.F EXT-1 EXT-2 EXT-3 EXT-4 SEXT-1 SEXT-2  
 982.54 -454.00 -454.00 422.02 525.86 525.46  
 ENGINE OIL EOILT SOILT OILP MANIFOLD PRESSURE = 7.6341  
 145.58 -24.941 57.562  
 DYNO COND. TORQUE RPM CYL. BACK PRESSURE = 29.360  
 9.2961 1194.3  
 INDUCTION AIR IAIRT1 IAIRT2 TAIRT1 TAIRT2  
 78.854 78.625 -35.238 75.140  
 ORIFICE AIR TEMP DELTAP ORFP FLOW  
 83.093 2.0433 53.270 1994.1  
 CELL TEMP. = 76.076 HEATER TEMP = 104.86 COOLER TEMP = 78.633

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NASA-LEWIS		PRELIMINARY DATA		04/13/76		CADDELL		REC 04/13/76 18:30:09.183		FAC SEX15		PGM C003		RDG 3298	
LEANOUT 25 BTDC I & T 80 DEG. HUM=0%				MODE = 6.0000				NO. SCANS = 5							
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 29.230				RATED HP. = 160.00		HC RATIO = 2.1250			
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		78.519		29.235		18.680		81.290		0.0056682		14.357			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		78.545		5.8128		44.686		3.9647		6.0636		6.1791			
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		80.505		-0.075832		0.82889		0.00000		0.33304		-27.537			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		0.33304		-2.8983		0.48810		0.011208		1.6709					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.074593		0.074587		1.1133		1201.7		1202.0		7.1674		1.6399	
WET CORRECTION FACTOR = 0.85288				EXHAUST MLE. WT. = 28.123				EXHAUST DENSITY = 0.072818				EXHAUST FLOW RATE = 1199.7			
MEASURED CONC.		PART PER MILLION WET				PER CENT									
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		2232.3		62.962		4.6908		11.594		0.14255					
CORRECTED CONC. TO WET BASIS						4.0007		9.8882		0.12158					
EMISSION RATE		HC		NOX		CO									
		0.096143		0.0089886		3.4844									
EMISSION MASS/MODE		0.0048071		0.00044943		0.17422									
EMISSION MASS/RATED HP		3.0045E-05		2.8089E-06		0.0010889									
MODE EMIS./STD. CYCLE %		1.5813		0.18726		2.5926									
CAL. FUEL AIR RATIO = 0.077652				MEAS. FUEL AIR RATIO = 0.074593				DIFF MEAS. & CAL. F/A PERCENT = 4.1011							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		265.89		286.62		273.66		274.71							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		869.21		-454.00		-454.00		109.81		520.30		520.16			
ENGINE OIL		FOILT		SOILT		OILP		MANIFOLD PRESSURE = 7.6520							
		145.54		155.55		57.686									
DYN COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.404									
		3.7804		1196.6											
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
		78.669		78.519		85.524		74.612							
ORIFICE AIR		TEMP		DELTA P		ORFP		FLOW							
		83.190		2.9652		53.442		2376.9							
CELL TEMP. = 76.174				HEATER TEMP = 110.97				COOLER TEMP = 80.764							

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NASA-LEWIS	PRELIMINARY DATA	04/13/76	CADDEII	REC 04/13/76 18:42:15.111	FAC SEX15	PGM C003	RDG 3300
LEANOUT 25 BTDC T & T 80 DEG. HUM=0%		MODE = 7.0000		NO. SCANS = 5			
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.230		RATED HP. = 160.00		HC RATIO = 2.1250
COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	77.431	29.226	11.710	50.793	0.0035632	14.354	
COMP. FUEL	TFMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	76.785	5.8776	44.732	3.9705	3.2733	6.2112	
COOLING AIR	TEMP	INDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	79.243	-0.068636	0.78737	0.00000	0.34724	-27.512	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	0.34724	47.355	0.49107	0.011277	0.76802		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.064445	0.064440	0.95186	595.80	602.04	6.6507	0.75447
WET CORRECTION FACTOR = 0.87737		EXHAUST MOLE. WT. = 28.789		EXHAUST DENSITY = 0.074541		EXHAUST FLOW RATE = 725.36	
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	14156.	33.735	1.5739	10.965	3.7407		
CORRECTED CONC. TO WET BASIS			1.3809	9.6207	3.2820		
EMISSION RATE	HC	NOX	CO				
	0.36864	0.0029120	0.72719				
EMISSION MASS/MODE	0.0061440	4.8533E-05	0.012120				
EMISSION MASS/RATED HP	3.8400E-05	3.0333E-07	7.5749E-05				
MODE FMIS./STD. CYCLE %	2.0211	0.020222	0.18035				
CAL. FUEL AIR RATIO = 0.066257		MEAS. FUEL AIR RATIO = 0.064445		DIFF MEAS. & CAL. F/A PERCENT = 2.8118			
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	233.00	266.82	255.26	263.30			
FXT GAS TEMP DEG.F	FXT-1	FXT-2	FXT-3	FXT-4	SFXT-1	SEXT-2	
	1354.4	-454.00	-454.00	297.00	480.33	479.13	
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 11.308			
	142.97	176.18	45.197				
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.415				
	6.4302	591.90					
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2			
	77.679	77.431	-52.194	76.229			
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW			
	81.580	2.0111	53.389	1982.0			
CELL TEMP. = 74.693	HEATER TEMP = 99.584		COOLER TEMP = 90.105				

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NASA-LEWIS		PRELIMINARY DATA		04/13/76	CADDEII	REC 04/13/76 18:54:42.981		FAC SEX15	PGM C003	RDG 3301	
LEANOUT 25 BTDC I. & T 80 DEG HUM=0% 3/4T LEAN											
ENGINE TIMING = 25.000				DEG.	BAROMETRIC PRESSURE = 29.230			RATED HP. = 160.00		HC RATIO = 2.1250	
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL					
	79.429	29.226	9.8930	42.917	0.0023711	14.360					
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP					
	78.651	5.8461	44.583	3.9645	3.9304	6.1993					
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT					
	81.897	-0.076385	0.83691	0.00000	0.25617	-28.407					
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP						
	0.25617	42.576	0.38674	0.0088808	0.43621						
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	PPM-1	RPM-2	TORQUE	BHP				
	0.091580	0.091575	1.3569	618.24	615.12	3.6337	0.42774				
WET CORRECTION FACTOR = 0.88855				EXHAUST MOLE. WT. = 26.803		EXHAUST DENSITY = 0.069399		EXHAUST FLOW RATE = 675.09			
MEASURED CONC.	PART PER MILLION WFT			PER CENT							
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY						
	21048.	15.226	7.7379	8.5605	2.1658						
CORRECTED CONC. TO WFT BASIS				6.8755	7.6066	1.9244					
EMISSION RATE	HC	NOX	CO								
	0.51011	0.0012231	3.3698								
EMISSION MASS/MODE	0.0085019	2.0386E-05	0.056163								
EMISSION MASS/RATED HP	5.3137E-05	1.2741E-07	0.00035102								
MODE EMIS./STD. CYCLE %	2.7967	0.0084940	0.83576								
CAL. FUEL AIR RATIO = 0.089078		MEAS. FUEL AIR RATIO = 0.091580		DIFF MEAS. & CAL. F/A PERCENT = -2.7326							
CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4							
	260.24	274.31	251.99	260.54							
FXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2					
	894.04	-454.00	-454.00	330.75	519.07	517.71					
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 10.346							
	149.98	314.63	45.993								
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.604								
	7.1647	609.42									
INDUCTION AIR	IAIRT1	IAIRT2	IAIRT1	IAIRT2							
	79.640	79.429	-59.435	76.407							
ORIFICE AIR	TEMP	DELTAP	ORF	FLOW							
	83.453	3.0295	53.362	2400.9							
CELL TEMP. = 76.847	HEATER TEMP = 112.68		COOLER TEMP = 93.867								

NASA-LEWIS	PRELIMINARY DATA	04/13/76	CADDET	REC 04/13/76 18:57:11.468	FAC SEX15	PGM C003	RDG 3302
LEANOUT 25 BTDC I & T	80 DEG HUM=0%	3/4T LEAV	MODE = 2.0000	NO. SCANS = 5			
ENGINE TIMING = 25.000	DEG.	BAROMETRIC PRESSURE = 29.230		RATED HP = 160.00	HC RATIO = 2.1250		
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	79.684	29.226	18.700	81.126	0.0053765	14.357	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	79.534	5.7930	44.560	3.9641	6.8377	6.1754	
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	81.650	-0.084964	0.77907	0.00000	0.30465	-27.747	
PFL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	0.30465	56.050	0.45391	0.010653	1.3934		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.084284	0.084279	1.2580	1207.3	1208.2	5.9422	1.3660
WET CORRECTION FACTOR = 0.85522	EXHAUST MOLE. WT. = 27.344	EXHAUST DENSITY = 0.070801	EXHAUST FLOW RATE = 1242.5				
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	4179.4	43.018	8.3935	9.6007	0.18610		
CORRECTED CONC. TO WET BASIS			7.1782	8.2107	0.15915		
EMISSION RATE	HC	NOX	CO				
	0.18642	0.0063605	6.4751				
EMISSION MASS/MODE	0.034178	0.0011661	1.1871				
EMISSION MASS/RATED HP	0.00021361	7.2880E-06	0.0074193				
MODE EMIS./STD. CYCLE %	11.243	0.48587	17.665				
CAL. FUEL AIR RATIO = 0.087559	MEAS. FUEL AIR RATIO = 0.084284	DIFF MEAS. & CAL. F/A PERCENT = 3.8851					
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	259.42	271.58	257.56	253.71			
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	1583.0	-454.00	-454.00	254.14	482.45	482.05	
ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 7.5836			
	147.23	233.39	57.822				
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.378				
	7.9136	1209.5					
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2			
	79.879	79.684	-55.211	76.271			
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW			
	83.620	0.99940	53.337	1409.0			
CELL TEMP. = 76.723	HEATER TEMP = 119.29	COOLER TEMP = 94.114					

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NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDE11 REC 04/13/76 18:57:34.393 FAC SEX15 PGM C003 RDG 3303

LEANOUT 25 BTDC. I & T 80 DEG HUM=0% 3/4T. LEAN MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.730 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	78.996	29.715	18.586	80.630	0.0042157	14.361

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	78.872	5.7930	44.677	3.9657	6.7527	6.1809

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	80.989	-0.085795	0.81699	0.00000	0.24592	-28.592

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	0.24592	-23.926	0.35599	0.0084044	1.8776

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.083873	0.083869	1.2518	1207.8	1208.9	8.0091	1.8419

WET CORRECTION FACTOR = 0.85346 EXHAUST MOLE. WT. = 27.376 EXHAUST DENSITY = 0.070885 EXHAUST FLOW RATE = 1233.0

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	4150.4	42.374	8.4112	9.6496	0.19350	
CORRECTED CONC. TO WET BASIS			7.1787	8.2356	0.16685	

	HC	NOX	CO
EMISSION RATE	0.18371	0.0062172	6.4258
EMISSION MASS/MODE	0.0091855	0.00031086	0.32129
EMISSION MASS/RATED HP	5.7410E-05	1.9429E-06	0.0020081
MODE EMIS./STD. CYCLE %	3.0216	0.12953	4.7811

CAL. FUEL-AIR RATIO = 0.087459 MEAS. FUEL-AIR RATIO = 0.083873 DIFF MEAS. & CAL. F/A PERCENT = 4.2746

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	259.25	270.99	257.88	254.11

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	894.54	-454.00	-454.00	-307.02	478.12	477.76

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 7.5633
	147.08	146.66	57.870	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.160
	11.096	1202.9	

INDUCTION AIR	IAIRT1	IAIPT2	IAIRT1	TAIRT2
	79.216	78.996	-44.209	76.461

ORIFICE AIR	TEMP	DELTAP	ORF <sup>2</sup>	FLOW
	82.917	0.035904	53.273	148.49

CELL TEMP. = 75.855 HEATER TEMP = 108.61 COOLER TEMP = 89.813

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NASA-LEWIS		PRELIMINARY DATA		04/13/76		CADDEII		REC 04/13/76 19:00:41.597		FAC SEX15		PGM C003		RDG 3304	
LFANOUT 25 BTDC I & T 80 DEG HUM=0% 3/4T LEAN MODE = 7.0000 NO. SCANS = 5															
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 29.230				RATED HP. = 160.00		HC RATIO = 2.1250			
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		76.874		29.230		10.241		44.481		0.0041962		14.354			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		76.997		5.8443		44.727		3.9701		3.9274		6.2001			
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		78.872		-0.087732		0.86182		0.00000		0.47564		-26.007			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		0.47564		24.980		0.65035		0.015164		0.52495					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		PPM-1		RPM-2		TORQUE		BHP	
		0.088294		0.088285		1.3178		510.02		610.14		4.4421		0.51595	
WET CORRECTION FACTOR = 0.87405				EXHAUST MOLE WT. = 27.042				EXHAUST DENSITY = 0.070018				EXHAUST FLOW RATE = 691.63			
MEASURED CONC.		PART PER MILLION WET				PER CENT									
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		19942.		13.149		7.5400		8.8487		1.8262					
CORRECTED CONC. TO WET BASIS						6.5903				7.7342		1.5962			
		HC				NOX				CO					
EMISSION RATE		0.49503				0.0010819				3.3082					
EMISSION MASS/MODE		0.0082505				1.3032E-05				0.055136					
EMISSION MASS/RATED HP		5.1565E-05				1.1270E-07				0.00034460					
MODE EMIS./STD. CYCLE %		2.7140				0.0075133				0.82048					
CAL. FUEL AIR RATIO = 0.089216				MEAS. FUEL AIR RATIO = 0.088294				DIFF MEAS. & CAL. F/A PERCENT = 1.0449							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		239.53		249.23		229.57		234.90							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		996.80		-454.00		-454.00		233.71		435.91		434.34			
ENGINE OIL		EOILT		SOILT		OILP		MANIFOLD PRESSURE = 10.398							
		143.36		-189.79		47.509									
DYN COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.206									
		6.1782		501.80											
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
		77.086		76.874		1.9338		75.509							
ORIFICE AIR		TEMP		DEL TAP		ORF2		FLOW							
		80.954		3.0013		53.298		2395.7							
CELL TEMP. = 73.956				HEATER TEMP = 102.51				COOLER TEMP = 79.610							

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NASA-LEWIS    PRELIMINARY DATA    04/13/76    CADDEII    REC 04/13/76 19:01:03.015    FAC SEX15    PGM C003    RRG 3305

LEANOUT 25 BTDC I & T 80 DEG HUM=0% 3/4T LEAN    MODE = 1.0000    NO. SCANS = 5

ENGINE TIMING = 25.000    DEG.    BAROMETRIC PRESSURE = 29.220    RATED HP. = 160.00    HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	76.723	29.224	10.293	44.754	0.3046266	14.350

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	77.104	5.8413	44.724	3.9698	3.9394	5.1902

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	78.801	-0.082197	0.81256	0.00000	0.52370	-25.432

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	0.52370	-16.908	0.72366	0.016618	0.54672

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.088024	0.088015	1.3138	596.22	595.26	4.7338	0.53739

WET CORRECTION FACTOR = 0.87711    EXHAUST MOLE. WT. = 27.062    EXHAUST DENSITY = 0.070070    EXHAUST FLOW RATE = 694.98

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	19823.	12.345	7.5513	8.7684	2.0689
CORRECTED CONC. TO WET BASIS			6.6321	7.6909	1.8147

EMISSION RATE	HC	NOX	CO
	0.49461	0.0010210	3.3463
EMISSION MASS/MODE	0.0082434	1.7016E-05	0.055771
EMISSION MASS/PATED HP	5.1521E-05	1.0635E-07	0.00034857
MODE EMIS./STD. CYCLE %	2.7117	0.0070902	0.82993

CAL. FUEL AIR RATIO = 0.088291    MEAS. FUEL AIR RATIO = 0.088024    DIFF MEAS. & CAL. F/A PERCENT = 0.30268

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	236.63	246.26	225.59	231.06

EXT GAS TEMP. DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	677.76	-454.00	-454.00	-403.05	431.16	428.93

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 10.464
	142.96	72.360	47.425	

DYNC COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.579
	7.2367	591.42	

INDUCTION AIR	IAIPT1	IAIRT2	TAIRT1	TAIRT2
	76.980	75.723	85.973	74.789

ORIFICE AIR	TEMP	DELTAP	ORF5	FLOW
	81.042	1.0477	53.280	1445.5

CELL TEMP. = 73.956    HEATER TEMP = 102.31    COOLER TEMP = 79.246

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NASA-LEWIS		PRELIMINARY DATA		04/13/76	CARDELL	REC 04/13/76 19:04:06.270		FAC SEX15	PGM C003	RDG 3306	
LEANOUT 25 BTDC I & T RO DEG HUM=0% 3/4T LFAN				MODE = 2.0000		NO. SCANS = 5					
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.220		RATED HP. = 160.00		HC RATIO = 2.1250			
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL					
	77.192	29.214	18.617	81.004	0.0042655	14.352					
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP					
	77.378	5.7879	44.717	3.9674	6.9307	6.1731					
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT					
	78.996	-0.078322	0.84024	0.00000	0.26268	-28.562					
REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP							
	0.26268	31.047	0.35860	0.0084644 1.9744							
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP				
	0.085559	0.085555	1.2770	1205.8	1206.7	8.4508	1.9402				
WET CORRECTION FACTOR = 0.85864				EXHAUST MOLE. WT. = 27.247		EXHAUST DENSITY = 0.070549		EXHAUST FLOW RATE = 1246.5			
MEASURED CONC.	PART PER MILLION WET			PER CENT							
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY						
	4614.5	41.158	8.4258	9.6640	0.17698						
CORRECTED CONC. TO WET BASIS				7.2348	8.2979	0.15196					
EMISSION RATE	HC	NOX	CO								
	0.20649	0.0061091	6.5472								
EMISSION MASS/MODE	0.037857	0.0011193	1.2003								
EMISSION MASS/RATED HP	0.00023661	6.9954E-06	0.0075019								
MODE EMIS./STD. CYCLE %	12.453	0.46636	17.862								
CAL. FUEL AIR RATIO = 0.087775		MEAS. FUEL AIR RATIO = 0.085559		DIFF MEAS. & CAL. F/A PERCENT = 2.5897							
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4							
	252.53	263.22	249.65	243.82							
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2					
	1424.2	-454.00	-454.00	207.88	410.04	409.41					
ENGINE OIL	EOILT	SOILT	OILD	MANIFOLD PRESSURE = 7.6040							
	141.12	-37.932	58.482								
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.133								
	5.1773	1200.8									
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2							
	77.369	77.192	-7.5535	74.533							
ORIFICE AIR	TEMP	DELTAP	ORIF	FLOW							
	81.492	1.0244	53.239	1429.0							
CELL TEMP. = 74.675		HEATER TEMP = 114.78		COOLER TEMP = 82.627							

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NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDILLAC REC 04/13/76 19:04:28.861 FAC SEX15 PGM C003 RDG 3307

LFANOUT 25 BTDC 1 & T 80 DEG HUM=0% 3/4T LEAN MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DFG. BAROMETRIC PRESSURE = 29.220 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	77.298	29.215	18.820	81.843	0.0046361	14.355

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	77.431	5.7891	44.715	3.9690	6.9277	6.1761

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	78.987	-0.084964	0.79900	0.00000	0.27982	-28.347

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	0.27982	20.992	0.39395	0.0090466	1.6186

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.084646	0.084641	1.2634	1204.5	1205.4	6.9340	1.5903

WET CORRECTION FACTOR = 0.85563 EXHAUST MILE. WT. = 27.317 EXHAUST DENSITY = 0.070729 EXHAUST FLOW RATE = 1255.1

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	O2 DRY
	4238.4	41.074	8.4387	9.6599
CORRECTED CONC. TO WET BASIS			7.2205	0.17036
			8.2657	0.14576

EMISSION RATE	HC	NOX	CO
	0.19098	0.0061349	6.5795
EMISSION MASS/MODE	0.0095490	0.00030674	0.32897
EMISSION MASS/RATED HP	5.9681E-05	1.9171E-06	0.0020561
MODE EMIS./STD. CYCLE %	3.1411	0.12781	4.8954

CAL. FUEL AIR RATIO = 0.087633 MEAS. FUEL AIR RATIO = 0.084646 DIFF MEAS. & CAL. F/A PERCENT = 3.5282

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	254.21	264.95	251.66	246.24

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1355.3	-454.00	-454.00	-353.67	407.88	407.52

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 7.5918
	141.24	-29.583	58.454	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.401
	9.8290	1200.7	

INDUCTION AIR	TAIPT1	TAIPT2	TAIRT1	TAIRT2
	77.511	77.298	-53.376	74.904

ORIFICE AIR	TEMP	DELTAP	DRF2	FLOW
	81.606	2.0258	53.281	1988.8

CELL TEMP. = 74.790 HEATER TEMP = 125.68 COOLER TEMP = 87.374

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NASA-LEWIS	PRELIMINARY DATA	04/13/76	CADDEII	REC 04/13/76 19:07:23.203	FAC SEX15	PGM C003	RDG 3308
LEANOUT 25 BTDC I & T	80 DEG HUM=0%	3/4T LEAN	MODE = 7.0000	NO. SCANS = 5			
ENGINE TIMING = 25.000	DEG.	BAROMETRIC PRESSURE = 29.220	RATED HP. = 160.00	HC RATIO = 2.1250			
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	77.688	29.223	10.085	43.848	0.0034903	14.351	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	77.918	5.8434	44.702	3.9679	3.9514	6.1545	
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	79.411	-0.079983	0.81754	0.00000	0.39061	-26.932	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	0.39061	67.527	0.55721	0.012795	0.79798		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.090116	0.090109	1.3450	584.45	578.04	7.0424	0.78369
WET CORRECTION FACTOR = 0.88412	EXHAUST MOLE. WT. = 26.908	EXHAUST DENSITY = 0.069672	EXHAUST FLOW RATE = 685.10				
MEASURED CONC.	PART PER MILLION WET			PER CENT			
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	23581.	9.0649	7.6599	8.3654	2.4878		
CORRECTED CONC. TO WET BASIS			6.7722	7.3960	2.1996		
EMISSION RATE	HC	NOX	CO				
	0.58084	0.00074012	3.3733				
EMISSION MASS/MODE	0.0096806	1.2335E-05	0.056222				
EMISSION MASS/RATED HP	6.0504E-05	7.7095E-08	0.00035139				
MODE EMIS./STD. CYCLE %	3.1844	0.0051397	0.83664				
CAL. FUEL AIR RATIO = 0.089388	MEAS. FUEL AIR RATIO = 0.090115	DIFF MEAS. & CAL. F/A PERCENT = -0.80792					
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	237.92	248.02	226.46	232.73			
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SFXT-1	SEXT-2	
	577.26	-454.00	-454.00	47.469	373.28	371.29	
ENGINE OIL	EOILT	SOILT	DILP	MANIFOLD PRESSURE = 10.818			
	138.90	-204.11	47.409				
DYAD COND.	TOROUF	RPM	CYL. BACK PRESSURE = 28.933				
	5.9406	575.94					
INDUCTION AIR	IAIPT1	IAIRT2	TAIRT1	TAIRT2			
	77.944	77.588	-138.06	74.880			
ORIFICE AIR	TEMP	DELTA P	ORFD	FLOW			
	82.029	1.0577	53.338	1451.0			
CELL TEMP. = 75.172	HEATER TEMP = 136.59	COOLER TEMP = 88.409					

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NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDE11 REC 04/13/76 19:18:00.395 FAC SEX15 PGM C003 RDG 3309

LFANOUT 25 BTDC 1 & T 80 DEG HUM=0% NEUTRAL MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.220 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR TEMP 78.068 PRESS 29.222 CFM 11.398 DRY FLOW 49.503 VAPOR FLOW 0.0028864 PRESS TOTAL 14.352

CPMR. FUEL TEMP 77.139 PRESS 5.8137 DENSITY 44.723 TURBO FLOW 6.1362 FLOW TRON 4.8695 FPIP 6.1884

COOLING AIR TEMP 80.866 UNEL-HOOD -0.073064 DEL-HOOD 0.83387 FLOW 0.00000 REL-HUM 0.28256 DEW-POINT -28.227

REL-HUM 1 0.28256 2 73.509 HUMIDITY 0.40816 % H2O VAPOR CORRECTED HP 0.0093727 0.62778

ENG. COND. F/A DRY 0.098368 F/A WET 0.098362 EQU. RATIO 1.4582 RPM-1 614.58 RPM-2 614.04 TORQUE 5.2672 BHP 0.61636

WET CORRECTION FACTOR = 0.89216 EXHAUST MOLE. WT. = 26.334 EXHAUST DENSITY = 0.068184 EXHAUST FLOW RATE = 797.48

MEASURED CONC. PART PER MILLION WET HC PPM 31781. NOX PPM 4.8245 CO DRY 9.4910 PER CENT CO2 DRY 6.8972 O2 DRY 3.0761  
CORRECTED CONC. TO WET BASIS CO DRY 8.4675 CO2 DRY 6.1533 O2 DRY 2.7444

EMISSION RATE HC 0.90988 NOX 0.00045784 CO 4.9024  
EMISSION MASS/MODE 0.015165 7.6307E-06 0.081707  
EMISSION MASS/RATED HP 9.4779E-05 4.7692E-08 0.00051067  
MODE EMIS./STD. CYCLE 3 4.9884 0.0031795 1.2159

CAL. FUEL AIR RATIO = 0.097514 MEAS. FUEL AIR RATIO = 0.098368 DIFF MEAS. & CAL. F/A PERCENT = -0.86770

CYL TEMP DEG.F CYL-1 255.10 CYL-2 265.70 CYL-3 243.91 CYL-4 255.89

EXT GAS TEMP DEG.F EXT-1 119.10 EXT-2 -454.00 EXT-3 -454.00 EXT-4 248.28 SEXT-1 524.63 SEXT-2 524.02

ENGINE OIL EOILT 151.17 SOILT 266.95 OILT 45.909 MANIFOLD PRESSURE = 11.013

DYMO COND. TORQUE 4.3132 RPM 608.58 CYL. RACK PRESSURE = 29.318

INDUCTION AIR IAIRT1 78.307 IAIRT2 78.068 TAIRT1 -2.0318 TAIRT2 75.487

ORIFICE AIR TEMP 82.029 DELTAP 1.9873 ORFP 53.367 FLOW 1970.1

CELL TEMP. = 75.225 HEATER TEMP = 128.51 COOLER TEMP = 89.195

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NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDEII REC 04/13/76 19:18:20.290 FAC SEX15 PGM C003 RDG 3310

LEANOUT 25 BTDC I & T 80 DEG HUM=0% NEUTRAL MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.220 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR TEMP 77.670 PRESS 29.224 CFM 11.388 DRY FLOW 49.405 VAPOR FLOW 0.0027480 PRESS TOTAL 14.351

COMB. FUEL TEMP 76.696 PRESS 5.8137 DENSITY 44.735 TURBO FLOW 6.0537 FLOW TRON 4.8575 FPIP 6.1701

COOLING AIR TEMP 80.267 UDEL-HOOD -0.095205 DEL-HOOD 0.83287 FLOW 0.00000 REF-HUM 0.27309 DEW-POINT -28.387

REL-HUM 1 0.27309 2 48.965 HUMIDITY 0.38935 % H2O VAPOR 0.0089408 CORRECTED HP 0.56729

ENG. COND. F/A DRY 0.098320 F/A WET 0.098315 EQU. RATIO 1.4575 RPM-1 611.70 RPM-2 611.28 TORQUE 4.7838 BHP 0.55717

WET CORRECTION FACTOR = 0.89188 EXHAUST MOLE. WT. = 26.337 EXHAUST DENSITY = 0.068192 EXHAUST FLOW RATE = 795.76

MEASURED CONC. PART PER MILLION WET HC PPM 32096. NOX PPM 4.6995 CO DRY 9.4447 CO2 DRY 6.9296 O2 DRY 3.0826  
CORRECTED CONC. TO WET BASIS CO DRY 8.4235 CO2 DRY 6.1803 O2 DRY 2.7493

EMISSION RATE HC 0.91692 NOX 0.00044502 CO 4.8665  
EMISSION MASS/MODE 0.015282 7.4170E-06 0.081108  
EMISSION MASS/RATED HP 9.5513E-05 4.5356E-08 0.00050693  
MODE EMIS./STD. CYCLE % 5.0270 0.0030904 1.2070

CAL. FUEL AIR RATIO = 0.097497 MEAS. FUEL AIR RATIO = 0.098320 DIFF MEAS. & CAL. F/A PERCENT = -0.83726

CYL TEMP DEG.F CYL-1 250.21 CYL-2 250.95 CYL-3 238.18 CYL-4 248.93

EXT GAS TEMP DEG.F EXT-1 1102.1 EXT-2 -454.00 EXT-3 -454.00 EXT-4 -421.98 SEXT-1 518.10 SEXT-2 517.14

ENGINE OIL EOILT 150.56 SOILT 67.556 OILT 45.845 MANIFOLD PRESSURE = 11.156

DYNO COND. TORQUE 4.3348 RPM 604.08 CYL. BACK PRESSURE = 29.047

INDUCTION AIR IAIRT1 77.909 IAIRT2 77.670 TAIRT1 -83.640 TAIRT2 76.033

ORIFICE AIR TEMP 81.599 DELTAP 1.0061 ORFP 53.304 FLOW 1416.4

CELL TEMP. = 74.817 HEATER TEMP = 140.76 COOLER TEMP = 93.417

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NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDELL REC 04/13/76 19:21:14.727 FAC SEX15 PGM C003 RDG 3311

LEANOUT 25 STDC I & T 80 DEG HUM=0% NEUTRAL MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.220 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	77.440	29.214	20.045	86.901	0.0043989	14.352

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	76.360	5.7588	44.743	9.6038	8.2928	6.1743

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	79.234	-0.073617	0.78461	0.00000	0.25045	-28.682

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	0.25045	60.546	0.35434	0.0081368	1.3329

FNG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.095428	0.095423	1.4243	1195.9	1197.0	5.7506	1.3094

WET CORRECTION FACTOR = 0.86632 EXHAUST MJLF. WT. = 26.533 EXHAUST DENSITY = 0.068700 EXHAUST FLOW RATE = 1385.7

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	NOX PPM	CO DRY
8853.9	19.064	11.056
CORRECTED CONC. TO WET BASIS		6.9933

EMISSION RATE	HC	NOX	CO
EMISSION MASS/MODE	0.44046	0.0031437	9.6362
EMISSION MASS/RATED HP	0.080751	0.00057634	1.7666
MODE EMIS./STD. CYCLE %	0.00050469	3.5021E-06	0.011041
	26.563	0.24014	26.289

CAL. FUEL AIR RATIO = 0.097392 MEAS. FUEL AIR RATIO = 0.095428 DIFF MEAS. & CAL. F/A PERCENT = 2.0581

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	244.22	255.80	235.92	232.92

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1355.1	-454.00	-454.00	169.83	481.61	480.95

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 8.1130
	145.05	192.59	57.098	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.412
	8.7777	1185.7	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	77.643	77.440	-60.403	76.442

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	80.893	0.096010	53.338	339.59

CELL TEMP. = 74.355 HEATER TEMP = 145.84 COOLER TEMP = 95.622

NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDEIJ REC 04/13/76 19:21:35.766 FAC SEX15 PGM C003 RDG 3312

LEAFOUT 25 BTDC I & T 80 DEG HUM=0% NEUTRAL MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.220 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	77.794	29.226	20.185	87.406	0.0052560	14.355

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	76.510	5.7576	44.739	9.5789	8.2838	6.1728

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	79.367	-0.081643	0.84217	0.00000	0.29414	-28.117

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	0.29414	-7.9208	0.42094	0.0096661 1.2195

ENG. COND.	F/A DRY	F/A WFT	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.094774	0.094758	1.4145	1198.0	1197.7	5.2505	1.1976

WET CORRECTION FACTOR = 0.86451 EXHAUST MOLE. WT. = 26.578 EXHAUST DENSITY = 0.068816 EXHAUST FLOW RATE = 1390.6

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	9113.9	19.450	11.335	8.0543	0.34941
CORRECTED CONC. TO WET BASIS			9.5399	6.9631	0.30207

	HC	NOX	CO
EMISSION RATE	0.45498	0.0032186	9.6311
EMISSION MASS/MODE	0.022749	0.00016093	0.48156
EMISSION MASS/RATED HP	0.00014218	1.0058E-06	0.0030097
MODE EMIS./STD. CYCLE %	7.4833	0.067053	7.1660

CAL. FUEL AIR RATIO = 0.097330 MEAS. FUEL AIR RATIO = 0.094774 DIFF MEAS. & CAL. F/A PERCENT = 2.6968

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	246.86	258.10	239.69	236.06

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	954.79	-454.00	-454.00	-406.03	479.31	478.65

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 8.1000
	144.59	71.333	57.258	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 28.873
	5.9190	1184.3	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	78.006	77.794	46.992	77.210

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	80.928	1.0531	53.313	1449.4

CELL TEMP. = 74.099 HEATER TEMP = 140.37 COOLER TEMP = 98.450

NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDEII REC 04/13/76 19:27:37.608 FAC SEX15 PGM C003 RDG 3313

LEANOUT 25 BTDC I & T 80 DEG HUM=0% NEUTRAL MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.220 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	79.084	29.218	11.595	50.071	0.0040585	14.351

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	77.511	5.8125	44.713	5.6632	4.8875	6.2001

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	80.655	-0.086072	0.82446	0.00000	0.37985	-26.842

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	0.37985	53.591	0.55738	0.013029	0.49931

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.097610	0.097602	1.4569	613.56	616.98	4.1921	0.48974

WET CORRECTION FACTOR = 0.89000 EXHAUST MFLF. WT. = 26.384 EXHAUST DENSITY = 0.068315 EXHAUST FLOW RATE = 804.55

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	31807.	3.5163	9.3456	7.0226	3.0420
CORRECTED CONC. TO WET BASIS			8.3176	6.2501	2.7074

EMISSION RATE	HC	NOX	CO
EMISSION MASS/MODE	0.91869	0.00033666	4.8584
EMISSION MASS/RATED HP	0.015312	5.6110E-06	0.080972
MODE EMIS./STD. CYCLE %	9.5697E-05	3.5069E-08	0.00050608
	5.0367	0.0023379	1.2049

CAL. FUEL AIR RATIO = 0.097151 MEAS. FUEL AIR RATIO = 0.097610 DIFF MEAS. & CAL. F/A PERCENT = -0.47092

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	238.47	249.99	227.00	233.82

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	597.03	-454.00	-454.00	189.13	405.77	404.20

ENGINE OIL	EQILT	SOILT	OILP	MANIFOLD PRESSURE = 11.018
	140.82	330.98	47.757	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.231
	6.5310	607.26	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	79.331	79.084	73.559	78.525

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	81.914	2.0219	53.307	1986.4

CELL TEMP. = 75.021 HEATER TEMP = 156.41 COOLER TEMP = 101.88

542

NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDEII REC 04/13/76 19:27:57.801 FAC SEX15 PGM C003 RDG 3314

LEANOUT 25 BTDC I.C.T. 80 DEG HUM=0% NEUTRAL MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.220 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR TEMP 79.358 PRESS 29.214 CFM 11.227 DRY FLOW 48.410 VAPOR FLOW 0.0041100 PRESS TOTAL 14.352

COMB. FUEL TEMP 77.590 PRESS 5.8119 DENSITY 44.711 TURBO FLOW 5.8173 FLOW TRON 4.8905 FPIP 6.1881

COOLING AIR TEMP 80.893 UNEL-HOOD -0.084688 DEL-HOOD 0.82031 FLOW 0.00000 PEL-HUM 0.39434 DEW-POINT -26.602

REL-HUM 1 0.39434 2 25.571 HUMIDITY 0.59429 % H2O VAPOR 0.013647 CORRECTED HP 0.45515

ENG. COND. F/A DRY 0.10102 F/A WFT 0.10101 EQU. RATIO 1.5378 RPM-1 610.08 RPM-2 608.46 TORQUE 3.8420 BHP 0.44630

WET CORRECTION FACTOR = 0.90489 EXHAUST MOLE. WT. = 26.159 EXHAUST DENSITY = 0.067732 EXHAUST FLOW RATE = 786.99

MEASURED CONC. PART PER MILLION WET HC PPM 31575. NOX PPM 3.6744 CO DRY 9.2564 CO2 DRY 7.0820 O2 DRY 3.1346  
CORRECTED CONC. TO WFT BASIS CO DRY 8.3851 CO2 DRY 6.4084 O2 DRY 2.8365

EMISSION RATE HC 0.89209 NOX 0.00034411 CO 4.7909  
EMISSION MASS/MODE 0.014868 5.7352E-06 0.079848  
EMISSION MASS/RATED HP 9.2926E-05 3.5845E-08 0.00049905  
MODE EMIS./STD. CYCLE % 4.8909 0.0023897 1.1882

CAL. FUEL AIR RATIO = 0.096031 MEAS. FUEL AIR RATIO = 0.10102 DIFF MEAS. & CAL. F/A PERCENT = -4.9400

CYL TEMP DEG.F CYL-1 235.69 CYL-2 247.53 CYL-3 222.93 CYL-4 229.67

FXT GAS TEMP DEG.F EXT-1 1446.4 EXT-2 -454.00 EXT-3 -454.00 EXT-4 -454.00 SEXT-1 401.27 SEXT-2 399.56

ENGINE OIL EOILT 140.30 SOILT -280.60 OILP 47.821 MANIFOLD PRESSURE = 10.987

DYNO COND. TORQUE 8.4536 RPM 601.20 CYL. BACK PRESSURE = 29.659

INDUCTION AIR IAIRT1 79.623 IAIRT2 79.358 TAIRT1 178.46 TAIRT2 79.346

ORIFICE AIR TEMP 82.020 DELTAP 1.984C DRFP 53.326 FLOW 1968.5

CELL TEMP. = 75.190 HEATER TEMP = 147.13 COOLER TEMP = 104.17

543



NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDET REC 04/13/76 19:30:51.336 FAC SEX15 PGM C003 RDG 3315  
 LEANOUT 25 BTDC I & T 80 DEG HUM=0% NEUTRAL MODE = 2.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.220 RATED HP. = 160.00 HC RATIO = 2.1250  
 COMB. AIR TEMP 80.337 PRESS 29.217 CFM 20.278 DRY FLOW 87.469 VAPOR FLOW 0.0085620 PRESS TOTAL 14.353  
 COMB. FUEL TEMP 17.537 PRESS 5.7576 DENSITY 44.712 TURBO FLOW 9.4874 FLOW TRON 8.1128 FPIP 6.1728  
 COOLING AIR TEMP 81.289 UDEL-HOOD -0.078876 DEL-HOOD 0.80260 FLOW 0.00000 REL-HUM 0.44034 DEW-POINT -25.782  
 REL-HUM 1 0.44034 2 64.518 HUMIDITY 0.68520 % H2O VAPOR CORRECTED HP 0.015735 1.7740  
 ENG. COND. F/A DRY 0.092751 F/A WET 0.092742 FOU. RATIO 1.3843 RPM-1 1194.4 RPM-2 1194.2 TORQUE 7.6424 BHP 1.7380  
 WET CORRECTION FACTOR = 0.85786 EXHAUST MOLE WT. = 26.720 EXHAUST DENSITY = 0.069183 EXHAUST FLOW RATE = 1381.7  
 MEASURED CONC. PART PER MILLION WET HC PPM 8291.8 NOX PPM 20.310 CO DRY 10.993 PER CENT CO2 DRY 8.1379 O2 DRY 0.26589  
 CORRECTED CONC. TO WET BASIS CO DRY 9.4303 PER CENT CO2 DRY 6.9812 O2 DRY 0.22809  
 EMISSION RATE HC 0.41130 NOX 0.0033394 CO 9.4595  
 EMISSION MASS/MODE 0.075405 0.00061222 1.7343  
 EMISSION MASS/RATED HP 0.00047128 3.9264E-06 0.010839  
 MODE EMIS./STD. CYCLE % 24.804 0.25509 25.807  
 CAL. FUEL AIR RATIO = 0.096998 MEAS. FUEL AIR RATIO = 0.092751 DIFF MEAS. & CAL. F/A PERCENT = 4.5788  
 CYL TEMP DEG.F CYL-1 249.52 CYL-2 260.28 CYL-3 246.87 CYL-4 240.50  
 EXT GAS TEMP DEG.F EXT-1 1174.6 EXT-2 -454.00 EXT-3 -454.00 EXT-4 96.384 SEXT-1 396.18 SEXT-2 395.78  
 ENGINE OIL EOILT 138.83 SOILT 13.316 OILT 58.198 MANIFOLD PRESSURE = 8.0194  
 DYNO COND. TORQUE 7.8848 RPM 1192.9 CYL. BACK PRESSURE = 29.272  
 INDUCTION AIR IAIRT1 80.584 IAIRT2 80.337 TAIRT1 158.49 TAIRT2 79.185  
 ORIFICE AIR TEMP 82.486 DELTAP 2.0414 ORFP 53.331 FLOW 1994.4  
 CELL TEMP. = 75.810 HEATED TEMP = 152.44 COOLER TEMP = 103.93

hhs

NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDET REC 04/13/76 19:31:14.832 FAC SEX15 PGM C003 RDG 3316

LEANOUT 25 BTDC L & T 80 DEG HUM=0% NEUTRAL MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.220 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR TEMP 80.637 PRESS 29.212 CFM 20.045 DRY FLOW 86.435 VAPOR FLOW 0.0066969 PRESS TOTAL 14.355

COMB. FUEL TEMP 77.581 PRESS 5.7576 DENSITY 44.711 TURBO FLOW 9.4066 FLOW TRON 8.0978 FPIP 6.1740

COOLING AIR TEMP 81.562 UDEL-HOOD -0.076385 DEL-HOOD 0.77077 FLOW 0.00000 REL-HUM 0.34521 DEW-POINT -27.062

REL-HUM 1 0.34521 2 14.635 HUMIDITY 0.54235 % H2O VAPOR 0.012454 CORRECTED HP 0.98081

ENG. COND. F/A DRY 0.093687 F/A WFT 0.093680 EQU. RATIO 1.3983 RPM-1 1194.1 RPM-2 1195.1 TORQUE 4.2254 BHP 0.96066

WET CORRECTION FACTOR = 0.86236 EXHAUST MOLE. WT. = 26.654 EXHAUST DENSITY = 0.069013 EXHAUST FLOW RATE = 1369.9

MEASURED CONC. PART PER MILLION WET HC PPM 8010.8 NOX PPM 21.481 CO DRY 10.892 PER CENT CO2 DRY 8.2068 O2 DRY 0.25228  
CORRECTED CONC. TO WFT BASIS CO DRY 9.3931 PER CENT CO2 DRY 7.0772 O2 DRY 0.21756

EMISSION RATE HC 0.39396 NOX 0.0035018 CO 9.3417  
EMISSION MASS/MODE 0.019698 0.00017509 0.46709  
EMISSION MASS/RATED HP 0.00012311 1.0943E-06 0.0029193  
MODE EMISS./STD. CYCLE % 6.4796 0.072953 6.9507

CAL. FUEL AIR RATIO = 0.096533 MEAS. FUEL AIR RATIO = 0.093687 DIFF MEAS. & CAL. F/A PERCENT = 3.0373

CYL TEMP DEG.F CYL-1 251.56 CYL-2 261.98 CYL-3 249.56 CYL-4 243.49

EXT GAS TEMP DEG.F EXT-1 1576.8 EXT-2 -454.00 EXT-3 -454.00 EXT-4 -424.48 SEXT-1 395.10 SEXT-2 394.74

ENGINE OIL EOILT 138.91 SOILT 138.73 OILT 58.106 MANIFOLD PRESSURE = 8.0218

DYNO COND. TORQUE 4.1332 RPM 1193.2 CYL. BACK PRESSURE = 29.254

INDUCTION AIR IAIRT1 80.857 IAIRT2 80.637 TAIRT1 54.351 TAIRT2 79.449

ORIFICE AIR TEMP 82.504 DELTAP 1.0179 ORFP 53.331 FLOW 1423.2

CELL TEMP. = 75.775 HEATER TEMP = 136.48 COOLER TEMP = 93.541

ORIGINAL PAGE IS  
OF POOR QUALITY

545

NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDELL REC 04/13/76 19:42:20.157 FAC SFX15 PGM C003 RDG 3319

LFANOUT 25 BTDC I & T 80 DEG HUM=0% 3/4T RICH MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.220 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TFMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	78.581	29.222	21.903	94.954	0.0056847	14.359

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	75.270	5.7351	44.772	11.051	9.4719	6.1644

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT
	80.575	-0.071127	0.81726	0.00000	0.28541	-28.132

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	0.28541	-0.61206	0.41907	0.0096233 1.2799

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.099753	0.099747	1.4888	1206.6	1205.3	5.4672	1.2560

WET CORRECTION FACTOR = 0.86492 EXHAUST MOLE. WT. = 26.242 EXHAUST DENSITY = 0.067946 EXHAUST FLOW RATE = 1537.0

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM	CO DRY
	12548.	7.2402
	NOX PPM	O2 DRY
	11.395	0.34359
	CO DRY	
	10.640	6.2622
CORRECTED CONC. TO WET BASIS		0.29718

EMISSION RATE	HC	NOX	CO
	0.69238	0.0020842	11.872
EMISSION MASS/MODE	0.034619	0.00010421	0.59362
EMISSION MASS/RATED HP	0.00021637	6.5130E-07	0.0037101
MODE EMIS./STD. CYCLE %	11.388	0.043420	8.8337

CAL. FUEL AIR RATIO = 0.10381 MEAS. FUEL AIR RATIO = 0.099753 DIFF MEAS. & CAL. F/A PERCENT = 4.0694

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	273.80	285.73	276.14	280.18

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1777.9	-454.00	-454.00	-312.42	505.33	505.15

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 8.5162
	149.07	47.734	57.138	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.255
	4.6733	1204.6	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	78.819	78.581	-37.545	76.729

ORIFICE AIR	TEMP	DELTAP	DRFP	FLOW
	80.945	2.0119	53.293	1983.5

CELL TEMP. = 73.956 HEATER TEMP = 109.73 COOLER TEMP = 90.221

546

NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDEII REC 04/13/76 19:45:19.825 FAC SEX15 PGM C003 RDG 3320

LEANOUT 25 BTDC I & I 80 DEG HUM=0% 3/4T RICH MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP 79.322	PRESS 29.240	CFM 13.459	DRY FLOW 58.213	VAPOR FLOW 0.0041359	PRESS TOTAL 14.355
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COMB. FUEL	TEMP 76.439	PRESS 5.7801	DENSITY 44.741	TURBO FLOW 7.3760	FLOW TRON 6.1026	FPIP 6.1764
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COOLING AIR	TEMP 81.086	UDEL-HOOD -0.075555	DEL-HOOD 0.84494	FLOW 0.00000	REL-HUM 0.33047	DEW-POINT -27.457
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REL-HUM	1 0.33047	2 40.660	HUMIDITY 0.49734	% H2O VAPOR 0.011421	CORRECTED HP 0.43196
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ENG. COND.	F/A DRY 0.10483	F/A WET 0.10483	EQU. RATIO 1.5547	RPM-1 585.36	RPM-2 586.32	TORQUE 3.8004	BHP 0.42357
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WET CORRECTION FACTOR = 0.89637 EXHAUST MOL. WT. = 25.918 EXHAUST DENSITY = 0.067107 EXHAUST FLOW RATE = 958.47

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM 41058.	NOX PPM 3.6144	CO DRY 10.490	CO2 DRY 5.7996	O2 DRY 3.5557
CORRECTED CONC. TO WET BASIS			9.4024	5.1986	3.1872

EMISSION RATE	HC	NOX	CO
	1.4128	0.00041224	6.5426
	0.023546	5.8707E-06	0.10904
	0.00014716	4.2942E-08	0.00068153
MODE EMIS./STD. CYCLE %	7.7454	0.0028628	1.6227

CAL. FUEL AIR RATIO = 0.10534 MEAS. FUEL AIR RATIO = 0.10483 DIFF MEAS. & CAL. F/A PERCENT = 0.48283

CYL TEMP DEG. F	CYL-1 243.97	CYL-2 256.00	CYL-3 235.64	CYL-4 243.10
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EXT GAS TEMP DEG. F	EXT-1 869.10	EXT-2 -454.00	EXT-3 -454.00	EXT-4 91.168	SEXT-1 442.34	SEXT-2 441.36
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ENGINE OIL	FOILT 145.48	SOILT 12.558	OILP 46.949	MANIFOLD PRESSURE = 12.383
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DYNO COND.	TORQUE 2.6499	RPM 586.02	CYL. BACK PRESSURE = 28.973
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INDUCTION AIR	IAIRT1 79.631	IAIRT2 79.322	TAIRT1 60.889	TAIRT2 77.806
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ORIFICE AIR	TEMP 81.342	DELTAP 1.0340	ORFP 53.302	FLOW 1435.8
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CELL TEMP. = 74.471 HEATED TEMP = 103.76 COOLER TEMP = 90.583

547

NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDEIJ REC 04/13/76 19:52:10.388 FAC SEX15 PGM C003 RDG 3321

LEANOUT 25 BTDC I.C.T. 80 DEG HUM=0% 3/4T RICH MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP 80.954	PRESS 29.224	CFM 13.817	DRY FLOW 59.738	VAPOR FLOW 0.0064232	PRESS TOTAL 14.358
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COMB. FUEL	TEMP 77.387	PRESS 5.7741	DENSITY 44.716	TURBO FLOW 7.4508	FLOW TRON 6.1896	FPIP 6.1863
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COOLING AIR	TEMP 82.891	UDEL-HOOD -0.090223	DEL-HOOD 0.82889	FLOW 0.00000	REL-HUM 0.47421	DEW-POINT -25.162
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REL-HUM	1 0.47421	2 52.435	HUMIDITY 0.75267	% H2O VAPOR 0.017284	CORRECTED HP 0.76656
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ENG. COND.	F/A DRY 0.10361	F/A WET 0.10360	EQU. RATIO 1.5465	RPM-1 608.64	RPM-2 608.04	TORQUE 6.4756	BHP 0.75044
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WET CORRECTION FACTOR = 0.89553 EXHAUST MOLE. WT. = 25.994 EXHAUST DENSITY = 0.067304 EXHAUST FLOW RATE = 979.64

MEASURED CONC.	PART PER MILLION WET		CO DRY 10.496	PER CENT	
	HC PPM 39969.	NOX PPM 3.5404		CO2 DRY 5.7589	O2 DRY 3.6343
CORRECTED CONC. TO WET BASIS			9.3997	5.1573	3.2546

EMISSION RATE EMISSION MASS/MODE EMISSION MASS/RATED HP MODE EMISS./STD. CYCLE %	HC	NOX	CO
	1.4057	0.00041272	6.6848
	0.023428	5.8787E-06	0.11141
	0.00014643	4.2992E-08	0.00069634
	7.7067	0.0028661	1.6579

CAL. FUEL AIR RATIO = 0.10450 MEAS. FUEL AIR RATIO = 0.10361 DIFF MEAS. & CAL. F/A PERCENT = 0.85587

CYL TEMP DEG.F	CYL-1 252.82	CYL-2 269.58	CYL-3 244.32	CYL-4 254.71
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EXT GAS TEMP DEG.F	FXT-1 -163.19	FXT-2 -454.00	FXT-3 -454.00	FXT-4 251.11	SFXT-1 539.37	SEXT-2 538.84
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ENGINE OIL	EOILT 152.59	SOILT 314.59	OILP 46.753	MANIFOLD PRESSURE = 11.992
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DYAN COND.	TORQUE 7.8128	RPM 607.08	CYL. RACK PRESSURE = 29.706
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INDUCTION AIR	IAIRT1 81.333	IAIPT2 80.954	TAIRT1 -39.536	TAIRT2 78.097
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ORIFICE AIR	TEMP 82.504	DELTAP 0.073307	ORFP 53.328	FLOW 273.73
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CELL TEMP. = 75.607 HEATER TEMP = 90.917 COOLER TEMP = 89.010

548

NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDE11 REC 04/13/76 19:52:30.020 FAC SEX15 PGM C003 RDG 3322

LEANOUT 25 BTDC I & T 80 DEG HUM=07 3/4T RICH MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR TEMP 80.963 PRESS 29.231 CFM 13.806 DRY FLOW 59.722 VAPOR FLOW 0.0053157 PRESS TOTAL 14.358

COMB. FUEL TEMP 77.555 PRESS 5.7774 DENSITY 44.712 TURBO FLOW 7.5975 FLOW TRON 6.2106 FPIP 6.1716

COOLING AIR TEMP 82.847 UDEL-HOOD -0.076662 DEL-HOOD 0.81948 FLOW 0.00000 REL-HUM 0.39246 DEW-POINT -26.342

REL-HUM 1 0.39246 2 40.108 HUMIDITY 0.62305 H2O VAPOR CORRECTED HP 0.014307 0.75746

ENG. COND. F/A DRY 0.10399 F/A WET 0.10398 EQU. RATIO 1.5521 RPM-1 604.56 RPM-2 602.64 TORQUE 6.4423 BHP 0.74158

WET CORRECTION FACTOR = 0.89440 EXHAUST MOLE. WT. = 25.970 EXHAUST DENSITY = 0.067242 EXHAUST FLOW RATE = 980.60

MEASURED CONC. PART PER MILLION WET HC PPM 40691 NOX PPM 3.5674 CO DRY 10.485 PER CENT CO2 DRY 5.8365 O2 DRY 3.5663  
CORRECTED CONC. TO WET BASIS CO DRY 9.3779 PER CENT CO2 DRY 5.2202 O2 DRY 3.1897

EMISSION RATE HC 1.4325 NOX 0.00041628 CO 6.6762  
EMISSION MASS/MODE 0.023874 5.9380F-06 0.11127  
EMISSION MASS/RATED HP 0.00014921 4.3362F-08 0.00069544  
MODE EMIS./STD. CYCLE % 7.8534 0.0028908 1.6558

CAL. FUEL AIR RATIO = 0.10499 MEAS. FUEL AIR RATIO = 0.10399 DIFF MEAS. & CAL. F/A PERCENT = 0.95414

CYL TEMP DEG.F CYL-1 248.44 CYL-2 264.96 CYL-3 239.11 CYL-4 248.73

EXT GAS TEMP DEG.F EXT-1 720.30 EXT-2 -454.00 EXT-3 -454.00 EXT-4 -413.81 SEXT-1 533.42 SEXT-2 532.55

ENGINE OIL EOILT 151.87 SOILT 59.744 OILT 46.737 MANIFOLD PRESSURE = 12.170

DYNO COND. TORQUE 6.7255 RPM 595.20 CYL. BACK PRESSURE = 29.294

INDUCTION AIR IAIRT1 81.298 IAIRT2 80.963 TAIRT1 -55.802 TAIRT2 77.865

ORIFICE AIR TEMP 82.635 DELTAP 0.048005 ORFP 53.386 FLOW 191.70

CELL TEMP. = 75.580 HEATER TEMP = 97.124 COOLER TEMP = 90.265

549

NASA-LEVIS PRELIMINARY DATA 04/13/76 CADDET REC 04/13/76 19:55:25.038 FAC SEX15 PGM C003 RDG 3523

LEANOUT 25 BTDC I & T 80 DEG HUM=0% 3/4T RICH MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP 81.606	PRESS 29.234	CFM 21.903	DRY FLOW 94.756	VAPOR FLOW 0.0067844	PRESS TOTAL 14.360
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COMB. FUEL	TEMP 77.900	PRESS 5.7369	DENSITY 44.703	TURBO FLOW 10.907	FLOW TRON 9.5139	FPIP 6.1665
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COOLING AIR	TEMP 82.926	UDEL-HOOD -0.078599	DEL-HOOD 0.81976	FLOW 0.00000	REL-HUM 0.30920	DEW-POINT -27.422
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REL-HUM	1 0.30920	2 45.085	HUMIDITY 0.50119	% H2O VAPOR 0.011509	CORRECTED HP 1.2206
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ENG. COND.	F/A DRY 0.10040	F/A WET 0.10040	EQU. RATIO 1.4986	RPM-1 1202.4	RPM-2 1202.1	TORQUE 5.2172	BHP 1.1944
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WET CORRECTION FACTOR = 0.86673 EXHAUST MILE. WT. = 26.199 EXHAUST DENSITY = 0.067836 EXHAUST FLOW RATE = 1537.2

MEASURED CONC.	PART PER MILLION WET		CO DRY 12.196	PER CENT	
	HC PPM 13386.	NOX PPM 11.121		CO2 DRY 7.3001	O2 DRY 0.36690
CORRECTED CONC. TO WET BASIS			10.571	6.3272	0.31800

EMISSION RATE	HC	NOX	CO
	0.73872	0.0020343	11.797
	0.13543	0.00037296	2.1627
	0.00084645	2.3310E-06	0.013517
EMISSION MASS/MODE			
EMISSION MASS/RATED HP			
MODE EMIS./STD. CYCLE %	44.550	0.15540	32.183

CAL. FUEL AIR RATIO = 0.10379 MEAS. FUEL AIR RATIO = 0.10040 DIFF MEAS. & CAL. F/A PERCENT = 3.3689

CYL TEMP DEG.F	CYL-1 256.18	CYL-2 268.54	CYL-3 256.10	CYL-4 252.44
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EXT GAS TEMP DEG.F	EXT-1 163.54	EXT-2 -454.00	EXT-3 -454.00	EXT-4 225.33	SEXT-1 511.26	SEXT-2 510.47
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ENGINE OIL	EOILT 147.08	SOILT 48.382	OILP 57.630	MANIFOLD PRESSURE = 8.4690
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DYNO COND.	TORQUE 11.471	RPM 1189.1	CYL. BACK PRESSURE = 29.300
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INDUCTION AIR	TAIPT1 81.879	TAIPT2 81.606	TAIRT1 -56.158	TAIRT2 77.860
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ORIFICE AIR	TEMP 83.031	DELTAP 2.0232	ORFP 53.306	FLOW 1985.0
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CFL TEMP. = 76.059 HEATER TEMP = 102.67 COOLER TEMP = 91.484

550

NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDE11 REC 04/13/76 19:55:45.130 FAC SEX15 PGM C003 RDG 3324

LEANOUT 25 BTDC I.C.T. 80 DEG HUM=0% 3/4T RICH MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BARMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP 81.694	PRESS 29.229	CFM 21.929	DRY FLOW 94.835	VAPOR FLOW 0.0083943	PRESS TOTAL 14.361
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COMB. FUEL	TEMP 77.900	PRESS 5.7366	DENSITY 44.703	TURBO FLOW 10.893	FLOW TRON 9.4659	FPIP 6.1629
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COOLING AIR	TEMP 82.996	UDEL-HOOD -0.075555	DEL-HOOD 0.80924	FLOW 0.00000	REL-HUM 0.38118	DEW-POINT -26.372
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REL-HUM	1 0.38118	2 -7.9148	HUMIDITY 0.61960	% H2O VAPOR 0.014228	CORRECTED HP 1.8151
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ENG. COND.	F/A DRY 0.099815	F/A WET 0.099806	EQU. RATIO 1.4898	RPM-1 1202.0	RPM-2 1202.6	TORQUE 7.7591	BHP 1.7758
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WET CORRECTION FACTOR = 0.86442 EXHAUST MOLE. WT. = 26.238 EXHAUST DENSITY = 0.067936 EXHAUST FLOW RATE = 1535.4

MEASURED CONC.	PART PER MILLION WET			PER CENT	
	HC PPM 13392.	NOX PPM 10.640	CO DRY 12.210	CO2 DRY 7.3075	O2 DRY 0.35327
CORRECTED CONC. TO WET BASIS			10.554	6.3168	0.30538

EMISSION RATE EMISSION MASS/MODE EMISSION MASS/RATED HP MODE FMIS./STD. CYCLE %	HC	NOX	CO
	0.73820	0.0019441	11.765
	0.13534	0.00035641	2.1569
	0.00084585	2.2276E-06	0.013481
	44.518	0.14851	32.097

CAL. FUEL AIR RATIO = 0.10388 MEAS. FUEL AIR RATIO = 0.099815 DIFF MEAS. & CAL. F/A PERCENT = 4.0677

CYL TEMP DEG.F	CYL-1 257.51	CYL-2 269.48	CYL-3 257.76	CYL-4 254.39
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EXT GAS TEMP DEG.F	EXT-1 1349.4	EXT-2 -454.00	EXT-3 -454.00	EXT-4 -251.65	SEXT-1 507.53	SEXT-2 506.82
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ENGINE OIL	EOILT 147.01	SOILT -26.279	OILT 57.638	MANIFOLD PRESSURE = 8.4926
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DYNO COND.	TORQUE 2.9163	RPM 1205.3	CYL. BACK PRESSURE = 29.283
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INDUCTION AIR	IAIRT1 82.002	IAIRT2 81.694	TAIRT1 79.547	TAIRT2 78.084
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ORIFICE AIR	TEMP 83.119	DELTAP 0.046705	ORFP 53.409	FLOW 187.11
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CELL TEMP. = 76.245 HEATER TEMP = 105.10 COOLER TEMP = 92.817

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NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDEII REC 04/13/76 20:00:48.826 FAC SEX15 PGM C003 RDG 3326

LEANOUT 25 BTDC 1 & T 80 DEG HUM=0% 3/4T RICH MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP 78.925	PRESS 29.232	CFM 13.754	DRY FLOW 59.477	VAPOR FLOW 0.0024423	PRESS TOTAL 14.356
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COMB. FUEL	TEMP 75.447	PRESS 5.7822	DENSITY 44.767	TURBO FLOW 7.3185	FLOW TRON 6.0366	FPIP 6.1863
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COOLING AIR	TEMP 80.284	UDEL-HOOD -0.078046	DEL-HOOD 0.83913	FLOW 0.00000	REL-HUM 0.19352	DEW-POINT -29.237
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REL-HUM	1 0.19352	2 45.054	HUMIDITY 0.28744	% H2O VAPOR 0.0066006	CORRECTED HP 0.57574
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ENG. COND.	F/A DRY 0.10150	F/A WET 0.10149	EQU. RATIO 1.5149	RPM-1 580.56	RPM-2 581.70	TORQUE 5.1088	BHP 0.56473
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WET CORRECTION FACTOR = 0.88812 EXHAUST MOLE. WT. = 26.128 EXHAUST DENSITY = 0.067653 EXHAUST FLOW RATE = 968.41

MEASURED CONC.	PART PER MILLION WET HC PPM 41718.	NOX PPM 3.3843	CO DRY 10.266	PER CFNT CO2 DRY 5.7958	O2 DRY 3.7098
CORRECTED CONC. TO WET BASIS			9.1172	5.1473	3.2947

EMISSION RATE	HC 1.4504	NOX 0.00039001	CO 6.4100
EMISSION MASS/MODE	0.024173	5.5002E-06	0.10683
EMISSION MASS/RATED HP	0.00015108	4.0626E-08	0.00066771
MODE EMIS./STD. CYCLE %	7.9515	0.0027084	1.5898

CAL. FUEL AIR RATIO = 0.10479 MEAS. FUEL AIR RATIO = 0.10150 DIFF MEAS. & CAL. F/A PERCENT = 3.2433

CYL TEMP DEG. F	CYL-1 239.84	CYL-2 252.54	CYL-3 234.73	CYL-4 240.17
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EXT GAS TEMP DEG. F	EXT-1 -250.61	EXT-2 -454.00	EXT-3 -454.00	EXT-4 163.32	SEXT-1 431.75	SEXT-2 430.18
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ENGINE OIL	EOILT 143.69	SOILT -104.80	OILP 47.017	MANIFOLD PRESSURE = 12.621
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DYNO COND.	TORQUE 7.5535	RPM 573.84	CYL. BACK PRESSURE = 29.148
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INDUCTION AIR	TAIRT1 79.340	TAIRT2 78.925	TAIRT3 11.323	TAIRT2 78.015
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ORIFICE AIR	TEMP 80.549	DELTA P 1.0185	ORIF 53.240	FLOW 1426.2
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CELL TEMP. = 73.245 HEATER TEMP = 105.85 COOLER TEMP = 91.970

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NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDEII REC 04/13/76 20:03:01.369 FAC SEX15 PGM C003 RDG 3327

LEANOUT 25 BTDC I & T 80 DEG HUM=0% 3/4T RICH MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP 79.446	PRESS 29.220	CFM 21.882	DRY FLOW 94.663	VAPOR FLOW 0.0089426	PRESS TOTAL 14.358
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COMB. FUEL	TEMP 75.553	PRESS 5.7333	DENSITY 44.765	TURBO FLOW 10.887	FLOW TRON 9.3309	FPIP 6.1632
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COOLING AIR	TEMP 80.566	UDEL-HOOD -0.085795	DEL-HOOD 0.80979	FLOW 0.00000	REL-HUM 0.43770	DEW-POINT -25.997
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REL-HUM	1 0.43770	2 31.841	HUMIDITY 0.66127	% H2O VAPOR 0.015185	CORRECTED HP 1.5240
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ENG. COND.	F/A DRY 0.098569	F/A WET 0.098560	EQU. RATIO 1.4712	RPM-1 1208.7	RPM-2 1208.6	TORQUE 6.4923	BHP 1.4941
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WET CORRECTION FACTOR = 0.86349 EXHAUST MOLE. WT. = 26.320 EXHAUST DENSITY = 0.068149 EXHAUST FLOW RATE = 1526.1

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM 11784.	NOX PPM 11.451	CO DRY 12.089	CO2 DRY 7.3910	O2 DRY 0.31077
CORRECTED CONC. TO WET BASIS			10.439	6.3821	0.26835

EMISSION RATE	HC	NOX	CO
	0.64563	0.0020796	11.565
	0.032281	0.00010398	0.57827
	0.00020176	6.4988E-07	0.0036142
MODE EMISS./STD. CYCLE %	10.619	0.043325	8.6052

CAL. FUEL AIR RATIO = 0.10271 MEAS. FUEL AIR RATIO = 0.098569 DIFF MEAS. & CAL. F/A PERCENT = 4.1961

CYL TEMP DEG.F	CYL-1 244.93	CYL-2 258.03	CYL-3 244.03	CYL-4 240.10
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EXT GAS TEMP DEG.F	FXT-1 -117.16	EXT-2 -454.00	EXT-3 -454.00	EXT-4 170.78	SEXT-1 432.33	SEXT-2 431.70
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ENGINE OIL	FOILT 141.88	SOILT -20.134	OILP 58.270	MANIFOLD PRESSURE = 8.3509
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DYNO COND.	TORQUE 6.2574	RPM 1207.3	CYL. BACK PRESSURE = 29.115
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INDUCTION AIR	IAIRT1 79.772	IAIRT2 79.446	TAIRT1 83.013	TAIRT2 77.811
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ORIFICE AIR	TEMP 80.831	DELTAP 1.0339	ORFP 53.216	FLOW 1436.4
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CELL TEMP. = 73.822 HEATER TEMP = 103.23 COOLER TEMP = 89.868

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NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDEII REC 04/13/76 20:13:17.573 FAC SEX15 PGM C003 RDG 3328

LFANOUT 25 BTDC 1 & T 80 DEG HUM=0% 1 1/2T RICH MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP 81.289	PRESS 29.234	CFM 15.114	DRY FLOW 65.330	VAPOR FLOW 0.0056122	PRESS TOTAL 14.358
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COMB. FUEL	TEMP 76.687	PRESS 5.7627	DENSITY 44.735	TURBO FLOW 8.1762	FLOW TRON 6.9937	FPIP 6.1689
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COOLING AIR	TEMP 82.961	WDEL-HOOD -0.088839	DEL-HOOD 0.82418	FLOW 0.00000	REL-HUM 0.37477	DEW-POINT -26.537
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REL-HUM	1 0.37477	2 65.435	HUMIDITY 0.60134	% H2O VAPOR 0.013809	CORRECTED HP 0.73816
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ENG. COND.	F/A DRY 0.10705	F/A WET 0.10704	EQU. RATIO 1.5978	RPM-1 603.00	RPM-2 600.78	TORQUE 6.2923	BHP 0.72244
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WET CORRECTION FACTOR = 0.90128 EXHAUST MOLE. WT. = 25.782 EXHAUST DENSITY = 0.066755 EXHAUST FLOW RATE = 1083.5

MEASURED CONC.	PART PER MILLION WET		CO DRY 10.730	PER CENT	
	HC PPM 46496.	NOX PPM 3.4113		CO2 DRY 5.1897	O2 DRY 4.1283
CORRECTED CONC. TO WET BASIS			9.6709	4.6774	3.7208

EMISSION RATE EMISSION MASS/MODE EMISSION MASS/RATED HP MODE EMIS./STD. CYCLE %	HC	NOX	CO
	1.8086	0.00043985	7.6073
	0.030144	7.3308E-06	0.12679
	0.00018840	4.5817E-08	0.00079243
	9.9156	0.0030545	1.8867

CAL. FUEL AIR RATIO = 0.10802 MEAS. FUEL AIR RATIO = 0.10705 DIFF MEAS. & CAL. F/A PERCENT = 0.90705

CYL TEMP DEG.F	CYL-1 254.14	CYL-2 276.70	CYL-3 253.49	CYL-4 266.42
EXT GAS TEMP DEG.F	EXT-1 -454.00	EXT-2 -454.00	EXT-3 134.89	EXT-4 386.85
			SEXT-1 533.47	SEXT-2 533.03

ENGINE OIL	EOILT 152.41	SOILT 305.53	OILP 46.485	MANIFOLD PRESSURE = 13.116
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DYNO COND.	TORQUE 7.7552	RPM 592.32	CYL. BACK PRESSURE = 29.389
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INDUCTION AIR	IAIPT1 81.668	IAIPT2 81.289	TAIRT1 -59.528	TAIRT2 78.244
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ORIFICE AIR	TEMP 82.548	DELTAP 1.0359	ORFP 53.340	FLOW 1435.5
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CFL TEMP. = 75.553 HEATER TEMP = 109.35 COOLER TEMP = 94.044

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NASA-LFWIS PRELIMINARY DATA 04/13/76 CADDEII REC 04/13/76 20:15:47.657 FAC SEX15 PGM C003 RDG 3329  
 LEANOUT 25 BTDC I & T 80 DEG HUM=0% 1 1/2T RICH MODE = 2.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO= 2.1250  

COMB. AIR	TEMP 81.826	PRESS 29.228	CFM 23.050	DRY FLOW 99.668	VAPOR FLOW 0.0066282	PRESS TOTAL 14.361
COMB. FUEL	TEMP 77.174	PRESS 5.7183	DENSITY 44.722	TURBO FLOW 11.767	FLOW TRON 10.363	FPIP 6.1617
COOLING AIR	TEMP 83.049	UDEL-HOOD -0.083027	DEL-HOOD 0.85795	FLOW 0.00000	REL-HUM 0.28517	DEW-POINT -27.732
REL-HUM	1 0.28517	2 50.001	HUMIDITY 0.46552	% H2O VAPOR 0.010690	CORRECTED HP 1.7008	
ENG. COND.	F/A DRY 0.10398	F/A WET 0.10397	EQU. RATIO 1.5519	RPM-1 1199.7	RPM-2 1201.3	TORQUE 7.2841 BHP 1.6639

 WET CORRECTION FACTOR = 0.86981 EXHAUST MOLE. WT. = 25.971 EXHAUST DENSITY = 0.067245 EXHAUST FLOW RATE = 1636.4  

MEASURED CONC.	PART PER MILLION WET			PER CENT	
	HC PPM 16619.	NOX PPM 7.3587	CO DRY 12.684	CO2 DRY 6.8703	O2 DRY 0.43844
CORRECTED CONC. TO WET BASIS			11.033	5.9759	0.38136

EMISSION RATE	HC	NOX	CO
	0.97633	0.0014329	13.107
	0.17899	0.00026271	2.4029
	0.0011187	1.6419E-06	0.015018
EMISSION MASS/MODE			
EMISSION MASS/RATED HP			
MODE EMISS./STD. CYCLE %	58.880	0.10946	35.758

 CAL. FUEL AIR RATIO = 0.10756 MEAS. FUEL AIR RATIO = 0.10398 DIFF MEAS. & CAL. F/A PERCENT = 3.4479  

CYL TEMP DEG.F	CYL-1 253.79	CYL-2 271.37	CYL-3 257.74	CYL-4 257.28
EXT GAS TEMP DEG.F	EXT-1 -170.69	EXT-2 199.63	EXT-3 518.36	EXT-4 513.11
				SEXT-1 522.66
				SEXT-2 522.00
ENGINE OIL	EOILT 147.78	SOILT 336.86	OILP 57.226	MANIFOLD PRESSURE = 8.8966
DYND COND.	TORQUE 1.4545	RPM 1196.7	CYL. BACK PRESSURE = 29.060	
INDUCTION AIR	IAIRT1 82.178	IAIRT2 81.826	TAIRT1 -54.178	TAIRT2 78.170
ORIFICE AIR	TEMP 82.979	DELTAP 2.0190	ORFP 53.326	FLOW 1983.1
CELL TEMP. = 75.988	HEATER TEMP = 108.48		COOLER TEMP = 93.744	

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NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDET REC 04/13/76 20:15:10.367 FAC SEX15 PGM C003 RDG 3330

LEAKOUT 25 BTDC I & T 80 DEG HUM=0% 1 1/2T RICH MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	81.985	29.234	22.889	98.918	0.0081618	14.363

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	77.183	5.7225	44.722	11.597	10.126	6.1692

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	83.093	-0.073894	0.83747	0.00000	0.35206	-26.747

PFL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	0.35206	1.8682	0.57757	0.013263	1.0468

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10237	0.10236	1.5279	1199.3	1201.4	4.4838	1.0239

WET CORRECTION FACTOR = 0.86507 EXHAUST MOLE. WT. = 26.073 EXHAUST DENSITY = 0.067508 EXHAUST FLOW RATE = 1615.4

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM	CO2 DRY
	16423.	6.9141
	NOX PPM	O2 DRY
	7.5958	0.43120
	CO DRY	
	12.658	
	10.950	
CORRECTED CONC. TO WET BASIS		
		5.9811
		0.37302

EMISSION RATE	HC	NOX	CO
	0.95245	0.0014601	12.842
EMISSION MASS/MODE	0.047622	7.3007E-05	0.64209
EMISSION MASS/RATED HP	0.00029764	4.5629E-07	0.0040131
MODE EMIS./STD. CYCLE %	15.665	0.030420	9.5549

CAL. FUEL AIR RATIO = 0.10733 MEAS. FUEL AIR RATIO = 0.10237 DIFF MEAS. & CAL. F/A PERCENT = 4.8463

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	255.43	272.04	259.37	259.07

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1345.4	240.90	563.51	345.15	519.46	518.76

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	147.43	41.680	57.326	8.8200

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	2.2394	1194.2	29.424

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	82.328	81.985	-42.358	78.560

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	83.031	1.0266	53.336	1428.5

CELL TEMP. = 75.952 HEATER TEMP = 108.44 COOLER TEMP = 94.987

NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDE11 REC 04/13/76 20:18:25.342 FAC SEX15 PGM C003 RDG 3331

LEANOUT 25 BTDC I & T 80 DEG HUM=0% 1.1/2T RICH MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP 80.443	PRESS 29.228	CFM 14.824	DRY FLOW 64.079	VAPOR FLOW 0.0059420	PRESS TOTAL 14.359
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COMB. FUEL	TEMP 75.872	PRESS 5.7603	DENSITY 44.756	TURBO FLOW 8.2659	FLOW TRON 6.9547	FPIP 6.1863
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COOLING AIR	TEMP 81.465	UDEL-HOOD -0.091053	DEL-HOOD 0.82667	FLOW 0.00000	REL-HUM 0.41997	DEW-POINT -26.107
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REL-HUM	1 0.41997	2 -15.952	HUMIDITY 0.64911	% H2O VAPOR 0.014906	CORRECTED HP 0.37980
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ENG. COND.	F/A DRY 0.10853	F/A WET 0.10852	EQU. RATIO 1.6199	RPM-1 605.88	RPM-2 605.40	TORQUE 3.2253	BHP 0.37208
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WET CORRECTION FACTOR = 0.90302 EXHAUST MOLE. WT. = 25.693 EXHAUST DENSITY = 0.066525 EXHAUST FLOW RATE = 1067.9

MEASURED CONC.	PART PER MILLION WET HC PPM 43880.	NOX PPM 3.4043	CO DRY 10.864	PER CENT CO2 DRY 5.4267	O2 DRY 3.7237
CORRECTED CONC. TO WET BASIS			9.8102	4.9004	3.3626

EMISSION RATE	HC 1.6822	NOX 0.00043260	CO 7.6055
EMISSION MASS/MODE	0.028037	7.2101E-06	0.12676
EMISSION MASS/RATED HP	0.00017523	4.5063E-08	0.00079223
MODE EMIS./STD. CYCLE %	9.2226	0.0030042	1.8863

CAL. FUEL AIR RATIO = 0.10791 MEAS. FUEL AIR RATIO = 0.10853 DIFF MEAS. & CAL. F/A PERCENT = -0.57373

CYL TEMP DEG.F	CYL-1 234.96	CYL-2 253.01	CYL-3 231.01	CYL-4 240.02
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EXT GAS TEMP DEG.F	EXT-1 215.29	EXT-2 162.35	EXT-3 271.72	EXT-4 433.17	SXT-1 466.42	SXT-2 465.53
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ENGINE OIL	EOILT 144.62	SOILT -46.497	OILP 47.393	MANIFOLD PRESSURE = 12.860
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DYNO COND.	TORQUE 3.7444	PPM 594.54	CYL. BACK PRESSURE = 29.328
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INDUCTION AIR	IAIRT1 80.593	IAIRT2 80.143	TAIRT1 60.464	TAIRT2 78.241
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ORIFICE AIR	TEMP 81.588	DELTAP 2.9708	ORFP 53.365	FLOW 2382.6
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CELL TEMP. = 73.929 HEATER TEMP = 139.37 COOLER TEMP = 94.229

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NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDEII REC 04/13/76 20:18:46.928 FAC SEX15 PGM C003 RDG 3332

LEANOUT 25 BTDC I & T 80 DEG HUM=0% 1 1/2T RICH MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP 79.711	PRESS 29.227	CFM 15.010	DRY FLOW 64.825	VAPOR FLOW 0.0055284	PRESS TOTAL 14.355
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COMB. FUEL	TEMP 75.323	PRESS 5.7585	DENSITY 44.771	TURBO FLOW 8.3029	FLOW TRON 7.0147	FPIP 6.1797
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COOLING AIR	TEMP 80.884	UDEL-HOOD -0.082750	DEL-HOOD 0.82391	FLOW 0.00000	REL-HUM 0.39164	DEW-POINT -26.577
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REL-HUM	1 0.39164	2 -59.720	HUMIDITY 0.59697	% H2O VAPOR 0.013708	CORRECTED HP 0.45526
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ENG. COND.	F/A DRY 0.10821	F/A WET 0.10820	EQU. RATIO 1.6151	RPM-1 604.68	RPM-2 606.54	TORQUE 3.8754	BHP 0.44619
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WET CORRECTION FACTOR = 0.90614 EXHAUST MOLE. WT. = 25.712 EXHAUST DENSITY = 0.066575 EXHAUST FLOW RATE = 1079.2

MEASURED CONC.	PART PER MILLION WET			PER CENT	
	HC PPM 44352.	NOX PPM 3.2323	CO DRY 10.721	CO2 DRY 5.3818	O2 DRY 3.9460
CORRECTED CONC. TO WET BASIS			9.7149	4.8767	3.5756

EMISSION RATE EMISSION MASS/MODE EMISSION MASS/RATED HP MODE EMISS./STD. CYCLE %	HC	NOX	CO
	1.7183	0.00041510	7.6113
	0.028638	6.9183E-06	0.12686
	0.00017899	4.3239E-08	0.00079285
	9.4205	0.0028826	1.8877

CAL. FUEL AIR RATIO = 0.10686 MEAS. FUEL AIR RATIO = 0.10821 DIFF MEAS. & CAL. F/A PERCENT = -1.2506

CYL TEMP DEG.F	CYL-1 230.26	CYL-2 250.16	CYL-3 226.01	CYL-4 235.25
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EXT GAS TEMP DEG.F	EXT-1 670.51	EXT-2 195.93	EXT-3 269.10	EXT-4 144.39	SEXT-1 459.93	SEXT-2 458.87
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ENGINE OIL	FOILT 144.05	SOILT 292.09	OILP 47.413	MANIFOLD PRESSURE = 12.873
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DYNO COND.	TORQUE 11.031	RPM 604.20	CYL. BACK PRESSURE = 29.914
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INDUCTION AIR	IAIRT1 80.170	IAIRT2 79.711	TAIRT1 90.243	TAIRT2 78.624
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ORIFICE AIR	TEMP 81.033	DELTAP 1.0396	ORFP 53.325	FLOW 1440.0
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CELL TEMP. = 73.369 HEATER TEMP = 108.34 COOLER TEMP = 95.217

558

NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDEII REC 04/13/76 20:22:16.208 FAC SEX15 PGM C003 RDG 3333

LEANOUT 25 BTDC 1 & T 80 DEG HUM=0% 1 1/2T RICH MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	79.517	29.227	22.100	95.558	0.0084955	14.362

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	74.666	5.7279	44.788	11.144	9.6760	6.1614

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	80.302	-0.079429	0.82031	0.00000	0.41109	-26.347

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	0.41109	42.822	0.62233	0.014291	1.8496

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10126	0.10125	1.5113	1192.8	1194.2	7.9841	1.8133

WET CORRECTION FACTOR = 0.86707 EXHAUST MOLE. WT. = 26.144 EXHAUST DENSITY = 0.067693 EXHAUST FLOW RATE = 1554.7

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY
	14185.	9.2289	12.284	7.2139
CORRECTED CONC. TO WET BASIS			10.651	6.2550

	NO2 DRY
	0.34703
	0.30090

	HC	NOX	CO
EMISSION RATE	0.79174	0.0017074	12.022
EMISSION MASS/MODE	0.14515	0.00031303	2.2040
EMISSION MASS/RATED HP	0.00090720	1.9564E-06	0.013775
MODE EMISS./STD. CYCLE %	47.748	0.13043	32.798

CAL. FUEL AIR RATIO = 0.10478 MEAS. FUEL AIR RATIO = 0.10126 DIFF MEAS. & CAL. F/A PERCENT = 3.4742

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	245.03	259.73	247.01	244.81

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	-391.35	780.53	287.22	544.62	455.44	454.95

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE
	141.25	-41.273	57.970	8.5382

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	2.0666	1184.8	29.369

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	79.852	79.517	-61.019	78.230

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	80.522	3.0019	53.313	2396.9

CELL TEMP. = 73.138 HEATER TEMP = 94.148 COOLER TEMP = 86.728



NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDELL REC 04/13/76 20:22:38.410 FAC SEX15 PGM C003 RDG 3334

LEANOUT 25 BTDC I & I 80 DEG HUM=0% 1 1/2T RICH MCDE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP 79.393	PRESS 29.229	CFM 21.949	DRY FLOW 94.952	VAPOR FLOW 0.0076247	PRESS TOTAL 14.356
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COMB. FUEL	TEMP 74.702	PRESS 5.7312	DENSITY 44.787	TURBO FLOW 10.941	FLOW TRON 9.5679	FPIP 6.1632
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COOLING AIR	TEMP 80.320	INLET-HOOD -0.085795	DEL-HOOD 0.79485	FLOW 0.00000	REL-HUM 0.37265	DEW-POINT -26.887
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REL-HUM	1 0.37265	2 14.725	HUMIDITY 0.56211	% H2O VAPOR 0.012908	CORRECTED HP 0.65352
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ENG. COND.	F/A DRY 0.10077	F/A WET 0.10076	EQU. RATIO 1.5040	RPM-1 1194.7	RPM-2 1195.3	TORQUE 2.8169	BHP 0.64076
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WET CORRECTION FACTOR = 0.86657 EXHAUST MOLE. WT. = 26.176 EXHAUST DENSITY = 0.067775 EXHAUST FLOW RATE = 1542.3

MEASURED CONC.	PART PER MILLION WET		CO DRY 10.526	PER CENT	
	HC PPM 13839.	NOX PPM 9.3789		CO2 DRY 7.2394	O2 DRY 0.36634
CORRECTED CONC. TO WET BASIS				6.2734	0.31745

EMISSION RATE EMISSION MASS/MODE EMISSION MASS/PATED HP MODE EMISS./STD. CYCLE %	HC	NOX	CO
	0.76625	0.3017213	11.897
	0.038312	8.6066E-05	0.59487
	0.00023945	5.3791E-07	0.0037179
	12.603	0.035861	8.8522

CAL. FUEL AIR RATIO = 0.10436 MEAS. FUEL AIR RATIO = 0.10077 DIFF MEAS. & CAL. F/A PERCENT = 3.5678

CYL TEMP DEG.F	CYL-1 247.02	CYL-2 260.91	CYL-3 249.15	CYL-4 247.15
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EXT GAS TEMP DEG.F	EXT-1 295.76	EXT-2 774.36	EXT-3 302.43	EXT-4 261.89	SEXT-1 453.62	SEXT-2 452.99
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ENGINE OIL	EOILT 141.30	SOILT 33.059	OILP 58.086	MANIFOLD PRESSURE = 8.5194
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DYNO COND.	TORQUE 8.6409	RPM 1199.0	CYL. BACK PRESSURE = 29.178
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INDUCTION AIR	TAIRT1 79.728	TAIRT2 79.393	TAIRT1 -117.97	TAIRT2 77.753
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GRIFICE AIR	TEMP 80.619	DELTAP 2.0394	ORFP 53.301	FLOW 1996.9
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CELL TEMP. = 73.245 HEATER TEMP = 99.776 COOLER TEMP = 88.453

095

NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDEII REC 04/13/76 20:26:23.948 FAC SEX15 PGM C003 RDG 3335  
 LEANOUT 25 BTDC I & T 80 DEG HUM=0% 1 1/2T RICH MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP 80.037	PRESS 29.229	CFM 15.093	DRY FLOW 65.174	VAPOR FLOW 0.0046944	PRESS TOTAL 14.355
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COMB. FUEL	TEMP 75.092	PRESS 5.7573	DENSITY 44.777	TURBO FLOW 8.4809	FLOW TRON 7.1827	FPIP 6.1605
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COOLING AIR	TEMP 80.760	UDEL-HOOD -0.081090	DFL-HOOD 0.84494	FLOW 0.00000	REL-HUM 0.32728	DEW-POINT -27.397
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REL-HUM	1 0.32728	2 35.502	HUMIDITY 0.50421	% H2O VAPOR 0.011578	CORRECTED HP 0.56522
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ENG. COND.	F/A DRY 0.11021	F/A WET 0.11020	EQU. RATIO 1.6449	RPM-1 595.56	RPM-2 596.94	TORQUE 4.8838	BHP 0.55381
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WET CORRECTION FACTOR = 0.90725 EXHAUST MOLE. WT. = 25.595 EXHAUST DENSITY = 0.066271 EXHAUST FLOW RATE = 1091.9

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM 45144.	NOX PPM 3.4403	CO DRY 10.766	CO2 DRY 5.4820
CORRECTED CONC. TO WET BASIS				
			CO DRY 9.7678	CO2 DRY 3.7395

EMISSION RATE	HC	NOX	CO
	1.7696	0.30044703	7.7431
	0.029494	7.4504E-06	0.12905
	0.00019434	4.6565E-08	0.00080657
EMISSION MASS/MODE			
EMISSION MASS/RATED HP			
MODE EMIS./STD. CYCLE %			

CAL. FUEL AIR RATIO = 0.10804 MEAS. FUEL AIR RATIO = 0.11021 DIFF MEAS. & CAL. F/A PERCENT = -1.9657

CYL TEMP DEG.F	CYL-1 221.49	CYL-2 240.38	CYL-3 216.42	CYL-4 225.12
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EXT GAS TEMP DEG.F	EXT-1 -454.00	EXT-2 592.73	EXT-3 72.476	EXT-4 400.49	SEXT-1 395.15	SEXT-2 393.89
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ENGINE OIL	FOILT 137.74	SOILT 75.407	OILP 45.889	MANIFOLD PRESSURE = 13.049
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DYNO COND.	TORQUE 5.1341	RPM 590.28	CYL. BACK PRESSURE = 29.408
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INDUCTION AIR	IAIPT1 80.469	IAIPT2 80.037	TAIRT1 -42.092	TAIRT2 78.721
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ORIFICE AIR	TEMP 81.271	DELTAP 1.0360	ORFP 53.275	FLOW 1437.3
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CELL TEMP. = 73.547 HEATER TEMP = 116.68 COOLER TEMP = 95.957

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NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDEII REC 04/13/76 20:54:01.745 FAC SEX15 PGM C003 RDG 3342

LEANOUT 25 BTDC I & I 80 DEG HUM=30% 1 1/2T LEAN MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BARMETRIC PRESSURE = 29.230 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP 81.448	PRESS 29.229	CFM 18.399	DRY FLOW 78.790	VAPOR FLOW 0.52638	PRESS TOTAL 14.359
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COMB. FUEL	TEMP 78.183	PRESS 5.8137	DENSITY 44.696	TURBO FLOW 3.9656	FLOW TRON 6.1626	FPIP 6.1836
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COOLING AIR	TEMP 82.838	UDEL-HOOD -0.079706	DEL-HOOD 0.80785	FLOW 0.00000	REL-HUM 28.693	DEW-POINT 45.885
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REL-HUM	1 28.693	2 35.324	HUMIDITY 46.765	% H2O VAPOR CORRECTED HP 1.0739 1.2617
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ENG. COND.	F/A DRY 0.078215	F/A WET 0.077696	EQU. RATIO 1.1674	RPM-1 1201.1	RPM-2 1202.5	TORQUE 5.3422	BHP 1.2217
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WET CORRECTION F/A = 0.85471 EXHAUST MOLE. WT. = 27.824 EXHAUST DENSITY = 0.072044 EXHAUST FLOW RATE = 1186.5

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM 3039.1	NOX PPM 50.067	CO DRY 5.1241	CO2 DRY 11.396	O2 DRY 0.18926
CORRECTED CONC. TO WET BASIS			4.3796	9.7401	0.16176

	HC	NOX	CO
EMISSION RATE	0.12945	0.0070691	3.7726
EMISSION MASS/MODE	0.023733	0.0012960	0.69164
EMISSION MASS/RATED HP	0.00014833	8.1000E-06	0.0043227
MODE EMIS./STD. CYCLE %	7.8068	0.54000	10.292

CAL. FUEL AIR RATIO = 0.078880 MEAS. FUEL AIR RATIO = 0.078215 DIFF MEAS. & CAL. F/A PERCENT = 0.84954

CYL TEMP DEG.F	CYL-1 278.44	CYL-2 290.06	CYL-3 277.82	CYL-4 276.74
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EXT GAS TEMP DEG.F	EXT-1 876.85	EXT-2 -454.00	EXT-3 -83.090	EXT-4 526.84	SEXT-1 457.49	SEXT-2 457.09
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ENGINE OIL	EOILT 147.66	SOILT -93.066	OILP 57.674	MANIFOLD PRESSURE = 7.7563
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DYNO COND.	TORQUE 4.5004	RPM 1209.6	CYL. BACK PRESSURE = 29.150
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INDUCTION AIR	IAIRT1 81.853	IAIRT2 81.448	TAIRT1 62.905	TAIRT2 77.653
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ORIFICE AIR	TEMP 82.398	DELTAP 3.0176	ORFP 53.266	FLOW 2398.7
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CFLT TEMP. = 75.695 HEATER TEMP = 99.026 COOLER TEMP = 80.613

562

NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDET REC 04/13/76 20:57:08.902 FAC SEX15 PGM C003 RDG 3343

LEANOUT 25 BTDC I & I 80 DEG HUM=30% 1 1/2T LEAN MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP 81.677	PRESS 29.233	CFM 18.654	DRY FLOW 79.996	VAPOR FLOW 0.53726	PRESS TOTAL 14.360
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COMB. FUEL	TEMP 78.625	PRESS 5.8122	DENSITY 44.584	TURBO FLOW 3.9628	FLOW TRON 6.2076	FPIP 6.1740
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COOLING AIR	TEMP 83.049	UDEL-HOOD -0.073617	DEL-HOOD 0.85629	FLOW 0.00000	REL-HUM 28.632	DEW-POINT 46.026
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REL-HUM	1 28.632	2 58.302	HUMIDITY 47.013	H2O VAPOR 1.0796	CORRECTED HP 1.3206
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ENG. COND.	F/A DRY 0.077599	F/A WET 0.077081	EQU. RATIO 1.1582	RPM-1 1200.6	RPM-2 1201.3	TORQUE 5.5922	BHP 1.2784
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WET CORRECTION FACTOR = 0.85105 EXHAUST MOLE. WT. = 27.875 EXHAUST DENSITY = 0.072174 EXHAUST FLOW RATE = 1201.8

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM 3001.1	NOX PPM 49.959	CO DRY 5.2373	CO2 DRY 11.285	O2 DRY 0.17428	
CORRECTED CONC. TO WET BASIS			4.4572	9.6044	0.14832	

EMISSION RATE	HC	NOX	CO
	0.12948	0.0071450	3.8890
	0.0064742	0.00035725	0.19445
	4.0464E-05	2.2328E-06	0.0012153
EMISSION MASS/MODE			
EMISSION MASS/RATED HP			
MODE EMIS./STD. CYCLE %	2.1297	0.14885	2.8936

CAL. FUEL AIR RATIO = 0.079225 MEAS. FUEL AIR RATIO = 0.077599 DIFF. MEAS. & CAL. F/A PERCENT = 2.0956

CYL TEMP DEG.F	CYL-1 279.32	CYL-2 290.79	CYL-3 278.38	CYL-4 275.98
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EXT GAS TEMP DEG.F	EXT-1 436.65	EXT-2 -454.00	EXT-3 -137.44	EXT-4 490.02	SEXT-1 432.46	SEXT-2 432.28
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ENGINE OIL	EOILT 147.26	SOILT 71.064	OILP 58.042	MANIFOLD PRESSURE = 7.7538
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DYNO COND.	TORQUE 3.3195	RPM 1211.3	CYL. BACK PRESSURE = 29.479
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INDUCTION AIR	IAIRT1 82.081	IAIRT2 81.677	TAIRT1 88.450	TAIRT2 76.884
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ORIFICE AIR	TEMP 82.952	DELTAP 1.0343	ORFP 53.292	FLOW 1433.9
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CELL TEMP. = 76.254 HEATER TEMP = 120.29 COOLER TEMP = 78.686

563

NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDEIJ REC 04/13/76 20:57:28.676 FAC SEX15 PGM C003 RDG 3344

LEANOUT 25 BTDC I G T 80 DEG HUM=30% 1 1/2T LEAN MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BARMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP 81.791	PRESS 29.232	CFM 18.607	DRY FLOW 79.737	VAPOR FLOW 0.53586	PRESS TOTAL 14.359
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COMB. FUEL	TEMP 78.651	PRESS 5.8137	DENSITY 44.583	TURBO FLOW 3.9645	FLOW TRON 6.1446	FPIP 6.1788
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COOLING AIR	TEMP 83.067	UDEL-HOOD -0.071680	DEL-HOOD 0.83924	FLOW 0.00000	REL-HUM 28.542	DEW-POINT 46.041
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REL-HUM	1 28.542	2 4.2044	HUMIDITY 47.342	% H2O VAPOR 1.0802	CORRECTED HP 1.6891
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ENG. COND.	F/A DRY 0.077061	F/A WET 0.076547	EQU. RATIO 1.1502	RPM-1 1200.8	RPM-2 1201.0	TORQUE 7.1507	BHP 1.6349
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WET CORRECTION FACTOR = 0.84976 EXHAUST MOLE. WT. = 27.919 EXHAUST DENSITY = 0.072288 EXHAUST FLOW RATE = 1195.5

MEASURED CONC.	PART PER MILLION WET		CO DRY 5.1906	PER CENT	
	HC PPM 2511.8	NOX PPM 49.655		CO2 DRY 11.430	O2 DRY 0.17026
CORRECTED CONC. TO WET BASIS		4.4022	9.7126	0.14468	

EMISSION RATE EMISSION MASS/MODE EMISSION MASS/RATED HP MODE EMISS./STD. CYCLE %	HC	NOX	CO
	0.10780	0.0070639	3.8207
	0.0053900	0.00035319	0.19103
	3.3688E-05	2.2075E-06	0.0011940
	1.7730	0.14716	2.8428

CAL. FUEL AIR RATIO = 0.078739 MEAS. FUEL AIR RATIO = 0.077061 DIFF MEAS. & CAL. F/A PERCENT = 2.1775

CYL TEMP DEG.F	CYL-1 279.43	CYL-2 291.08	CYL-3 278.35	CYL-4 275.84
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EXT GAS TEMP DEG.F	EXT-1 1483.0	EXT-2 -454.00	EXT-3 -196.74	EXT-4 152.92	SEXT-1 430.31	SEXT-2 430.09
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ENGINE OIL	FILT 147.29	SOILT 93.252	OILP 58.370	MANIFOLD PRESSURE = 7.7180
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DYNO COND.	TORQUE 11.996	RPM 1188.8	CYL. BACK PRESSURE = 29.324
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INDUCTION AIR	IAIRT1 82.169	IAIRT2 81.791	TAIRT1 183.01	TAIRT2 77.250
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ORIFICE AIR	TEMP 82.970	DELTAP 0.075007	ORFP 53.330	FLOW 278.76
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CELL TEMP. = 76.094 HEATER TEMP = 129.53 COOLER TEMP = 82.600

564

NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDEII REC 04/13/76 21:00:57.386 FAC SEX15 PGM C003 RDG 3345

LFANOUT 25 BTDC I & T 80 DEG HUM=30% 1 1/2T LFAN MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP 78.828	PRESS 29.229	CFM 11.559	DRY FLOW 49.522	VAPOR FLOW 0.33303	PRESS TOTAL 14.358
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COMB. FUEL	TEMP 76.289	PRESS 5.8632	DENSITY 44.745	TURBO FLOW 3.9700	FLOW TRON 3.4773	FPIP 6.1893
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COOLING AIR	TEMP 80.029	UDEL-HOOD -0.079429	DEL-HOOD 0.82972	FLOW 0.00000	REL-HUM 31.462	DEW-POINT 46.056
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REL-HUM	1 31.462	2 32.649	HUMIDITY 47.074	% H2O VAPOR 1.0810	CORRECTED HP 0.53640
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ENG. COND.	F/A DRY 0.070219	F/A WET 0.069749	EQU. RATIO 1.0480	RPM-1 614.34	RPM-2 613.20	TORQUE 4.4504	BHP 0.52058
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WET CORRECTION FACTOR = 0.87689 EXHAUST MOLE WT. = 28.497 EXHAUST DENSITY = 0.073786 EXHAUST FLOW RATE = 722.79

MEASURED CONC.	PART PER MILLION WET		CO DRY 2.1441	PER CENT	
	HC PPM 14172.	NOX PPM 27.411		CO2 DRY 10.995	O2 DRY 2.9743
CORRECTED CONC. TO WET BASIS			1.8801	9.6418	2.6081

EMISSION RATE EMISSION MASS/MODE EMISSION MASS/RATED HP MODE EMIS./STD. CYCLE %	HC	NOX	CO
	0.36775	0.0023576	0.98657
	0.0061291	3.9294E-05	0.016443
	3.8307E-05	2.4559E-07	0.00010277
	2.0162	0.016373	0.24469

CAL. FUEL AIR RATIO = 0.069838 MEAS. FUEL AIR RATIO = 0.070219 DIFF MEAS. & CAL. F/A PERCENT = -0.54148

CYL TEMP DEG.F	CYL-1 238.41	CYL-2 250.75	CYL-3 249.86	CYL-4 251.87
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EXT GAS TEMP DEG.F	EXT-1 241.08	EXT-2 -11.951	EXT-3 -349.13	EXT-4 462.21	SEXT-1 384.38	SEXT-2 383.57
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ENGINE OIL	EQILT 144.16	SOILT -12.11C	OILP 47.441	MANIFOLD PRESSURE = 11.145
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DYND COND.	TORQUE 7.6328	RPM 602.28	CYL. BACK PRESSURE = 29.087
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INDUCTION AIR	TAIPT1 79.296	TAIPT2 78.828	TAIRT1 157.49	TAIPT2 77.330
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ORIFICE AIR	TEMP 80.249	DELTAP 2.9549	ORIF 53.392	FLOW 2379.4
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CELL TEMP. = 73.005 HEATER TEMP = 145.63 COOLER TEMP = 83.274

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NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDEII REC 04/13/76 21:01:18.483 FAC SEX15 PGM C003 RRG 3346

LEANOUT 25 BTDC I & T 80 DEG HUM=30% 1 1/2T LEAN MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP 79.040	PRESS 29.227	CFM 11.673	DRY FLOW 49.960	VAPOR FLOW 0.33584	PRESS TOTAL 14.361
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COMB. FUEL	TEMP 76.360	PRESS 5.8620	DENSITY 44.743	TURBO FLOW 3.9698	FLOW TRON 3.4563	FPIP 6.1893
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COOLING AIR	TEMP 80.090	DEL-HOOD -0.077769	DEL-HOOD 0.86348	FLOW 0.00000	REL-HUM 31.237	DEW-POINT 46.050
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REL-HUM	1 31.237	2 28.331	HUMIDITY 47.055	% H2O VAPOR 1.0805	CORRECTED HP 0.44247
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ENG. COND.	F/A DRY 0.069182	F/A WET 0.068720	FOU. RATIO 1.0326	RPM-1 594.66	RPM-2 598.74	TORQUE 3.7920	BHP 0.42935
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WET CORRECTION FACTOR = 0.87289 EXHAUST MOLE. WT. = 28.520 EXHAUST DENSITY = 0.073846 EXHAUST FLOW RATE = 727.90

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM 14434.	NOX PPM 28.503	CO DRY 2.2116	CO2 DRY 10.978	O2 DRY 3.1600	
CORRECTED CONC. TO WET BASIS			1.9305	9.5826	2.7584	

EMISSION RATE EMISSION MASS/MODE EMISSION MASS/RATED HP MODE EMIS./STD. CYCLE %	HC	NOX	CO
	0.37719	0.0024689	1.0202
	0.0062866	4.1149E-05	0.017003
	3.9291E-05	2.5718E-07	0.00010627
	2.0679	0.017145	0.25302

CAL. FUEL AIR RATIO = 0.069560 MEAS. FUEL AIR RATIO = 0.069182 DIFF MEAS. & CAL. F/A PERCENT = 0.54640

CYL TEMP DEG. F	CYL-1 232.79	CYL-2 258.20	CYL-3 246.97	CYL-4 249.36
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FXT GAS TEMP DEG. F	EXT-1 915.79	EXT-2 76.160	EXT-3 -319.50	EXT-4 60.607	SEXT-1 381.22	SFXT-2 379.96
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ENGINE OIL	EOILT 143.77	SOILT 101.90	OILP 47.361	MANIFOLD PRESSURE = 11.325
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DYNO COND.	TORQUE 1.0441	RPM 601.14	CYL. BACK PRESSURE = 29.645
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INDUCTION AIR	TAIRT1 79.464	TAIRT2 79.040	TAIRT1 69.102	TAIRT2 77.987
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ORIFICE AIR	TEMP 80.267	DELTA P 1.0697	ORIF 53.346	FLOW 1461.4
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CELL TEMP. = 73.067 HEATER TEMP = 148.64 COOLER TEMP = 87.356

566

NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDEII REC 04/13/76 21:04:27.482 FAC SEX15 PGM C003 RDG 3347

LEANOUT 25 BTDC 1 & 1.80 DEG HUM=30% 1 1/2T LEAN MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	79.658	29.224	19.173	82.113	0.55382	14.363

CCMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	76.740	5.8017	44.733	3.9655	6.5046	6.1752

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	80.425	-0.079983	0.84909	0.00000	30.715	46.141

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	30.715	38.516	47.212	1.0842	1.1617

ENG. COND.	F/A DRY	F/A WET	FQU, RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.079215	0.078685	1.1923	1205.4	1206.4	4.9088	1.1266

WET CORRECTION FACTOR = 0.85504 EXHAUST MILE. WT. = 27.743 EXHAUST DENSITY = 0.071834 EXHAUST FLOW RATE = 1241.3

MEASURED CONC.	PART PER MILLION WET	NOX PPM	CO DRY	PER CENT	CO2 DRY	O2 DRY
	HC PPM	49.193	5.5765	11.144	0.15792	0.13502
CORRECTED CONC. TO WET BASIS			4.7681	9.5289		

EMISSION RATE	HC	NOX	CO
	0.11690	0.0072668	4.2971
EMISSION MASS/MODE	0.021432	0.0013322	0.78780
EMISSION MASS/RATED HP	0.00013395	8.3265E-06	0.0049237
MODE EMIS./STD. CYCLE %	7.0499	0.55510	11.723

CAL. FUEL AIR RATIO = 0.079816 MEAS. FUEL AIR RATIO = 0.079216 DIFF MEAS. & CAL. F/A PERCENT = 0.75748

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	258.60	276.05	263.72	260.26

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	255.73	-454.00	-304.93	384.33	382.93	382.62

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 7.7742
	143.23	-43.997	58.274	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.428
	6.5598	1206.8	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	80.029	79.658	201.91	77.662

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	80.787	1.0620	53.381	1455.6

CELL TEMP. = 73.547 HEATER TEMP = 151.39 COOLER TEMP = 85.347

567



NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDEII REC 04/13/76 21:07:16.645 FAC SEX15 PGM C003 RDG 3348

LEANOUT 25 BTDC I & T 80 DEG HUM=30% 1 1/2T LFAN MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP 79.737	PRESS 29.225	CFM 11.736	DRY FLOW 50.312	VAPOR FLOW 0.33897	PRESS TOTAL 14.356
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COMB. FUEL	TEMP 76.997	PRESS 5.8632	DENSITY 44.727	TURBO FLOW 3.9701	FLOW TRON 3.3783	FPIP 6.1992
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COOLING AIR	TEMP 80.796	UDEL-HOOD -0.081643	DEL-HOOD 0.82723	FLOW 0.00000	REL-HUM 30.589	DEW-POINT 46.100
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REL-HUM	1 30.589	2 45.861	HUMIDITY 47.162	% H2O VAPOR 1.0830	CORRECTED HP 0.46072
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ENG. COND.	F/A DRY 0.067148	F/A WET 0.066698	FQU. RATIO 1.0222	RPM-1 596.46	PPM-2 600.84	TORQUE 3.9337	BHP 0.44675
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WET CORRECTION FACTOR = 0.87454 EXHAUST MOLE. WT. = 28.673 EXHAUST DENSITY = 0.074242 EXHAUST FLOW RATE = 727.74

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM 16703.	NOX PPM 27.631	CO DRY 1.8501	CO2 DRY 10.665	O2 DRY 3.7916
CORRECTED CONC. TO WET BASIS			1.6180	9.3267	3.3159

	HC	NOX	CO
EMISSION RATE	0.43640	0.0023929	0.85483
EMISSION MASS/MODE	0.0072733	3.9881E-05	0.014247
EMISSION MASS/RATED HP	4.5458E-05	2.4926E-07	8.9045E-05
MODE EMIS./STD. CYCLE %	2.3925	0.016617	0.21201

CAL. FUEL AIR RATIO = 0.068078 MEAS. FUEL AIR RATIO = 0.067148 DIFF. MEAS. & CAL. F/A PERCENT = 1.3859

CYL TEMP DEG. F	CYL-1 233.94	CYL-2 251.85	CYL-3 245.95	CYL-4 250.35
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EXT GAS TEMP DEG. F	EXT-1 75.014	EXT-2 -223.93	EXT-3 -454.00	EXT-4 368.40	SEXT-1 347.83	SEXT-2 346.98
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ENGINE OIL	EOILT 141.26	SOILT 48.121	OILP 47.453	MANIFOLD PRESSURE = 11.393
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DYND COND.	TORQUE 7.6832	PPM 593.40	CYL. BACK PRESSURE = 29.830
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INDUCTION AIR	IAIPT1 80.196	IAIPT2 79.737	TAIPT1 125.44	TAIPT2 76.873
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ORIFICE AIR	TEMP 81.298	DELTAP 0.060006	ORFP 53.372	FLOW 232.19
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CELL TEMP. = 74.142 HEATER TEMP = 141.39 COOLER TEMP = 78.491

895

NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDEII REC 04/13/76 21:07:37.903 FAC SEX15 PGM C003 RDG 3349

LFANOUT 25 BTDC 1 & T 80 DEG HUM=30% 1 1/2T LEAN MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR TEMP 79.887 PRESS 29.228 CFM 11.549 DRY FLOW 49.469 VAPOR FLOW 0.33336 PRESS TOTAL 14.356

COMB. FUEL TEMP 77.139 PRESS 5.8653 DENSITY 44.723 TURBO FLOW 3.9697 FLOW TRON 3.3813 FPIP 6.1776

COOLING AIR TEMP 80.840 UDEL-HOOD -0.072234 DEL-HOOD 0.82778 FLOW 0.00000 REL-HUM 30.444 DEW-POINT 46.106

REL-HUM 1 30.444 2 12.017 HUMIDITY 47.171 % H2O VAPOR 1.0832 CORRECTED HP 0.21872

ENG. COND. F/A DRY 0.068352 F/A WET 0.067894 EQU. RATIO 1.0202 RPM-1 591.30 RPM-2 590.40 TORQUE 1.8835 BHP 0.21206

WET CORRECTION FACTOR = 0.88143 EXHAUST MLE. WT. = 28.591 EXHAUST DENSITY = 0.074028 EXHAUST FLOW RATE = 718.43

MEASURED CONC. HC PPM 17528. NOX PPM 26.917 CO DRY 1.7938 PER CENT CO2 DRY 10.748 O2 DRY 3.9358  
CORRECTED CONC. TO WET BASIS CO DRY 1.5722 PER CENT CO2 DRY 9.4732 O2 DRY 3.4690

EMISSION RATE HC 0.45210 NOX 0.0023012 CO 0.82003  
EMISSION MASS/MODE 0.0075349 3.8353E-05 0.013667  
EMISSION MASS/RATED HP 4.7093E-05 2.3971E-07 8.5420E-05  
MODE EMISS./STD. CYCLE % 2.4786 0.015981 0.20338

CAL. FUEL AIR RATIO = 0.067856 MEAS. FUEL AIR RATIO = 0.068352 DIFF MEAS. & CAL. F/A PERCENT = -0.72614

CYL TEMP DEG.F CYL-1 227.83 CYL-2 250.08 CYL-3 243.03 CYL-4 248.06

EXT GAS TEMP DEG.F EXT-1 828.96 EXT-2 100.87 EXT-3 -454.00 EXT-4 -68.589 SFXT-1 343.01 SEXT-2 342.11

ENGINE OIL EOILT 140.83 SOILT 67.999 OILT 47.365 MANIFOLD PRESSURE = 11.544

DYNO COND. TORQUE 7.0351 RPM 582.84 CYL. BACK PRESSURE = 29.087

INDUCTION AIR IAIRT1 80.346 IAIRT2 79.887 TAIRT1 57.634 TAIRT2 77.317

ORIFICE AIR TEMP 81.368 DELTAP 2.0172 ORFP 53.415 FLOW 1985.2

CELL TEMP. = 74.169 HEATER TEMP = 147.75 COOLER TEMP = 82.999

ORIGINAL PAGE IS  
OF POOR QUALITY

569

NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDEII REC 04/13/76 21:18:06.676 FAC SEX15 PGM C003 RDG 3350

LEANOUT 25 BTDC I & T 80 DEG. HUM=30% 3/4T LEAN MCDE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP 80.743	PRESS 29.232	CFM 9.9865	DRY FLOW 47.658	VAPOR FLOW 0.28813	PRESS TOTAL 14.358
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COMB. FUEL	TEMP 76.776	PRESS 5.8407	DENSITY 44.732	TURBO FLOW 3.9689	FLOW IRON 3.9544	FPIP 6.1947
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COOLING AIR	TEMP 82.345	DEL-HOOD -0.076108	DEL-HOOD 0.85601	FLOW 0.00000	REL-HUM 29.678	DEW-POINT 46.171
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REL-HUM	1 29.678	2 59.784	HUMIDITY 47.280	% H2O VAPOR 1.0857	CORRECTED HP 0.57953
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ENG. COND.	F/A DRY 0.092700	F/A WET 0.092078	EQU. RATIO 1.3336	RPM-1 608.94	PPM-2 611.40	TORQUE 4.8421	BHP 0.56142
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WET CORRECTION FACTOR = 0.88582 EXHAUST MOLE. WT. = 26.723 EXHAUST DENSITY = 0.069193 EXHAUST FLOW RATE = 677.83

MEASURED CONC.	PART PER MILLION WET		CO DRY 7.5958	PER CENT	
	HC PPM 21887.	NOX PPM 13.447		CO2 DRY 8.5333	O2 DRY 2.2925
CORRECTED CONC. TO WET BASIS			6.7286	7.5590	2.0308

EMISSION RATE EMISSION MASS/MODE EMISSION MASS/RATED HP MCDE EMIS./STD. CYCLE %	HC	NOX	CO
	0.53260	0.0010847	3.3111
	0.0088767	1.8078E-05	0.055186
	5.5479E-05	1.1299E-07	0.00034491
	2.9200	0.0075325	0.82121

CAL. FUEL AIR RATIO = 0.088847 MEAS. FUEL AIR RATIO = 0.092700 DIFF MEAS. & CAL. F/A PERCENT = -4.1566

CYL TEMP DEG.F	CYL-1 258.65	CYL-2 270.61	CYL-3 250.91	CYL-4 260.95
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EXT GAS TEMP. DEG.F	EXT-1 -15.948	EXT-2 -22.725	EXT-3 -300.84	EXT-4 325.56	SFXT-1 509.46	SEXT-2 509.06
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ENGINE OIL	EOILT 151.24	SOILT 230.64	OILP 45.933	MANIFOLD PRESSURE = 10.405
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DYNO COND.	TORQUE 6.5670	RPM 606.60	CYL. BACK PRESSURE = 29.488
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INDUCTION AIR	TAIRT1 81.192	TAIPT2 80.743	TAIRT1 -25.084	TAIRT2 78.905
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ORIFICE AIR	TEMP 81.659	DELTA P 3.0220	ORIF 53.277	FLOW 2402.0
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CELL TEMP. = 74.418 HEATER TEMP = 113.03 COOLER TEMP = 76.097

570

NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDEII REC 04/13/76 21:18:26.246 FAC SEX15 PGM C003 RDG 3351  
 LEANOUT 25 BTDC I & J 80 DEG. HUM=30% 3/4T LEAN MODE = 1.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP 79.940	PRESS 29.228	CFM 9.9450	DRY FLOW 42.567	VAPOR FLOW 0.28758	PRESS TOTAL 14.358
COMB. FUEL	TEMP 76.315	PRESS 5.8443	DENSITY 44.745	TURBO FLOW 3.9899	FLOW TRON 3.9094	FPIP 6.2166
COOLING AIR	TEMP 81.633	DEL-HOOD -0.083304	DEL-HOOD 0.93313	FLOW 0.00000	REL-HUM 30.473	DEW-POINT 46.176
REL-HUM	1 30.473	2 55.476	HUMIDITY 47.292	% H2O VAPOR 1.0860	CORRECTED HP 0.47231	
ENG. COND.	F/A DRY 0.091841	F/A WET 0.091225	EQU. RATIO 1.3708	RPM-1 603.66	RPM-2 604.56	TORQUE 3.9837 BHP 0.45789

 WET CORRECTION FACTOR = 0.89017 EXHAUST MOLE. WT. = 26.784 EXHAUST DENSITY = 0.069351 EXHAUST FLOW RATE = 674.31  

MEASURED CONC.	PART PER MILLION WET HC PPM 21024.	NOX PPM 13.663	CO DRY 7.7157	PER CENT CO2 DRY 8.6124	O2 DRY 2.1212
CORRECTED CONC. TO WET BASIS			6.7911	7.5804	1.8670

EMISSION RATE	HC 0.50894	NOX 0.0010964	CO 3.3246
EMISSION MASS/MODE	0.0084824	1.8273E-05	0.055410
EMISSION MASS/RATED HP	5.3015E-05	1.1421E-07	0.00034631
MODE EMIS./STD. CYCLE %	2.7903	0.0076138	0.82455

 CAL. FUEL AIR RATIO = 0.089226 MEAS. FUEL AIR RATIO = 0.091841 DIFF MEAS. & CAL. F/A PERCENT = -2.8479  

CYL TEMP DEG.F	CYL-1 253.50	CYL-2 255.50	CYL-3 245.14	CYL-4 254.53
EXT GAS TEMP DEG.F	EXT-1 825.17	EXT-2 -200.61	EXT-3 -347.62	EXT-4 -218.43
			SEXT-1 502.43	SEXT-2 501.99
ENGINE OIL	FRILT 150.74	SOILT -68.705	DILT 45.845	MANIFOLD PRESSURE = 10.624
DYNO COND.	TORQUE 4.2556	RPM 601.20		CYL. BACK PRESSURE = 29.142
INDUCTION AIR	TAIRT1 80.408	TAIRT2 79.940	TAIRT1 106.15	TAIRT2 77.790
ORIFICE AIR	TEMP 81.016	DELTAP 1.0397	ORIF 53.236	FLOW 1440.1
CIL TEMP. = 73.876		HEATER TEMP = 106.60		COOLER TEMP = 69.016

571

NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDEIJ REC 04/13/76 21:21:08.946 FAC SEX15 PGM C003 RDG 3352

LEAN CUT 25 BTDC I & T 80 DEG. HUM=30% 3/4T LEAN MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR TEMP 79.861 PRESS 29.232 CFM 19.152 DRY FLOW 81.632 VAPOR FLOW 0.55344 PRESS TOTAL 14.357

COMB. FUEL TEMP 75.527 PRESS 5.7831 DENSITY 44.765 TURBO FLOW 3.9718 FLOW TRON 7.2397 FPIP 6.1752

COOLING AIR TEMP 80.469 INLET-HOOD -0.089116 DEL-HOOD 0.85020 FLOW 0.00000 REL-HUM 30.656 DEW-POINT 46.266

REL-HUM 1 30.656 2 55.552 HUMIDITY 47.458 % H2O VAPOR CORRECTED HP 1.0298 1.0190

ENG. COND. F/A DRY 0.088687 F/A WET 0.088090 EQU. RATIO 1.3237 RPM-1 1199.6 RPM-2 1199.8 TORQUE 4.3254 BHP 0.98799

WET CORRECTION FACTOR = 0.85755 EXHAUST MOLE. WT. = 27.013 EXHAUST DENSITY = 0.069943 EXHAUST FLOW RATE = 1278.5

MEASURED CONC. PART PER MILLION WET HC PPM 5078.5 NOX PPM 34.116 CO DRY 8.9208 PER CENT CO2 DRY 9.3513 O2 DRY 0.21800  
CORRECTED CONC. TO WET BASIS CO DRY 7.6500 PER CENT CO2 DRY 8.0192 O2 DRY 0.18695

EMISSION RATE HC 0.23310 NOX 0.0051907 CO 7.1009  
EMISSION MASS/MODE 0.042735 0.00095162 1.3018  
EMISSION MASS/RATED HP 0.00026709 5.9476E-06 0.0081364  
MODE EMIS./STD. CYCLE % 14.058 0.39651 19.372

CAL. FUEL AIR RATIO = 0.089251 MEAS. FUEL AIR RATIO = 0.088687 DIFF MEAS. & CAL. F/A PERCENT = 0.64714

CYL TEMP DEG.F CYL-1 257.15 CYL-2 267.98 CYL-3 255.52 CYL-4 253.66

EXT GAS TEMP DEG.F EXT-1 1043.0 EXT-2 95.384 EXT-3 -454.00 EXT-4 270.97 SEXT-1 474.26 SEXT-2 474.09

ENGINE OIL EOILT 147.14 SOILT -130.03 OILT 57.414 MANIFOLD PRESSURE = 7.9021

DYNO COND. TORQUE 4.1980 RPM 1208.5 CYL. BACK PRESSURE = 29.382

INDUCTION AIR IAIRT1 83.275 IAIRT2 79.861 TAIRT1 138.37 TAIRT2 79.995

CRIFICE AIR TEMP 80.055 DELTAP 0.11281 ORFP 53.182 FLOW 384.08

CELL TEMP. = 73.138 HEATER TEMP = 135.40 COOLER TEMP = 89.405

572

NASA-LEWIS PRELIMINARY DATA 04/13/76 CANDEII REC 04/13/76 21:21:30.145 FAC SEX15 PGM C003 RDG 3353

LEANOUT 25 BTDC I & I 80 DEG. HUM=30% 3/4T LEAN MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	79.720	29.228	19.048	81.362	0.55121	14.362

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	75.544	5.7840	44.765	3.9734	7.1467	6.1773

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	80.584	-0.081090	0.77437	0.00000	30.786	46.256

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	30.786	-0.35203	47.424	1.0890	1.1369

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.087838	0.087247	1.3110	1199.9	1200.5	4.8255	1.1024

WET CORRECTION FACTOR = 0.85442 EXHAUST MILE. WT. = 27.076 EXHAUST DENSITY = 0.070106 EXHAUST FLOW RATE = 1270.4

MEASURED CONC.	PART PER MILLION WET			PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	5107.5	33.867	8.8919	9.3921	0.21468
CORRECTED CONC. TO WET BASIS			7.5974	8.0248	0.18343

	HC	NOX	CO
EMISSION RATE	0.23293	0.0051198	7.0070
EMISSION MASS/MODE	0.011647	0.00025599	0.35035
EMISSION MASS/RATED HP	7.2792E-05	1.5999E-06	0.0021897
MODE EMIS./STD. CYCLE %	3.8311	0.10666	5.2135

CAL. FUEL AIR RATIO = 0.089178 MEAS. FUEL AIR RATIO = 0.087838 DIFF MEAS. & CAL. F/A PERCENT = 1.5247

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	258.85	259.12	257.42	255.24

EXT GAS TEMP DEG. F	FXT-1	FXT-2	FXT-3	FXT-4	SEXT-1	SEXT-2
	1753.4	131.12	-454.00	-84.993	471.12	470.81

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	146.81	-36.111	57.522	7.8679

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	1.4041	1203.5	29.537

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	80.090	79.720	186.14	79.038

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	80.196	2.0465	53.276	2000.9

CELL TEMP. = 73.360 HEATER TEMP = 123.18 COOLER TEMP = 73.169

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573

NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDETT RE 04/13/76 21:24:52.530 FAC SEX15 PGM C003 RDG 3354

LEANOUT 25 BTDC I & T 80 DEG. HUM=30% 3/4T LEAN MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	80.029	29.229	19.012	81.324	0.55056	14.361

CCMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	76.103	5.7861	44.750	3.9721	7.1677	6.1794

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	80.980	-0.081643	0.73350	0.00000	30.454	46.236

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	30.454	80.172	47.390	1.0882 1.5911

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.088138	0.087545	1.3155	1200.1	1201.1	6.7507	1.5425

WET CORRECTION FACTOR = 0.85726 EXHAUST MOLE. WT. = 27.054 EXHAUST DENSITY = 0.070048 EXHAUST FLOW RATE = 1271.2

MEASURED CONC.	PART PER MILLION WET	CO DRY	PER CENT	O2 DRY
	HC PPM	NOX PPM	CO2 DRY	
	5376.5	35.326	8.6571	9.4829 0.22792
CORRECTED CONC. TO WET BASIS			7.4299	8.1293 0.19539

EMISSION RATE	HC	NOX	CO
EMISSION MASS/MODE	0.24535	0.0053436	6.8568
EMISSION MASS/RATED HP	0.044982	0.00097966	1.2571
MODE EMIS./STD. CYCLE	0.00028114	6.1229E-06	0.0078567
	14.797	6.40819	18.706

CAL. FUEL AIR RATIO = 0.088717 MEAS. FUEL AIR RATIO = 0.088138 DIFF MEAS. & CAL. F/A PERCENT = 0.65631

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	264.67	274.97	254.95	262.82

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	808.81	-335.15	-454.00	302.22	438.54	438.32

ENGINE OIL	FILTY	SOILT	OIL?	MANIFOLD PRESSURE = 7.9198
	145.59	140.38	57.534	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 28.955
	2.1602	1206.7	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	80.399	80.029	135.93	78.235

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	80.796	1.0133	53.276	1422.3

CELL TEMP. = 74.098

HEATER TEMP = 117.87

COOLER TEMP = 69.605

574

NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDEIJ REC 04/13/76 21:25:14.611 FAC SEX:3

LEANOUT 25 BTDC I/L &amp; T 80 DEG HUM=30% 3/4T LEAN MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP 79.773	PRESS 29.226	CFM 18.590	DRY FLOW 80.089	VAPOR FLOW 0.54138	PRESS TOTAL 14.358
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COMB. FUEL	TEMP 76.183	PRESS 5.7858	DENSITY 44.748	TURBO FLOW 3.9702	FLOW TRON 6.9427	FPIP 6.1683
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COOLING AIR	TEMP 80.893	UDEL-HOOD -0.073054	DEL-HOOD 0.83249	FLOW 0.00000	RFL-HUM 30.657	DEW-POINT 46.191
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REL-HUM	1 30.657	2 22.650	HUMIDITY 47.318	% H2O VAPOR 1.0866	CORRECTED HP 0.81257
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ENG. COND.	F/A DRY 0.086687	F/A WET 0.086105	EQU. RATIO 1.2938	RPM-1 1199.4	RPM-2 1199.5	TORQUE 3.4503	BHP 0.78795
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WET CORRECTION FACTOR = 0.85337 EXHAUST MOLE. WT. = 27.162 EXHAUST DENSITY = 0.070329 EXHAUST FLOW RATE = 1245.2

MEASURED CONC.	PART PER MILLION WET		CO DRY 8.6965	PER CENT	
	HC PPM 4753.5	NOX PPM 34.895		CO2 DRY 9.4864	O2 DRY 0.27265
CORRECTED CONC. TO WET BASIS			7.4214	8.0954	0.23267

EMISSION RATE	HC	NOX	CO
	0.21249	0.0051708	6.7090
	0.010625	0.00025854	0.33545
	6.6404E-05	1.5159E-06	0.0020966
EMISSION MASS/MODE			
EMISSION MASS/RATED HP			
MODE EMIS./STD. CYCLE %	3.4949	0.10772	4.9918

CAL. FUEL AIR RATIO = 0.088248 MEAS. FUEL AIR RATIO = 0.086687 DIFF MEAS. &amp; CAL. F/A PERCENT = 1.8005

CYL TEMP DEG.F	CYL-1 264.79	CYL-2 275.34	CYL-3 265.43	CYL-4 262.94
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EXT GAS TEMP DEG.F	FXT-1 1598.4	FXT-2 -345.05	FXT-3 -454.00	FXT-4 -165.95	SEXT-1 435.46	SEXT-2 435.28
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ENGINE OIL	EOILT 145.50	SOILT 161.07	OILP 57.634	MANIFOLD PRESSURE = 7.7400
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DYNO COND.	TORQUE 5.7318	RPM 1199.6	CYL. BACK PRESSURE = 29.368
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INDUCTION AIR	IAIRT1 80.117	IAIRT2 79.773	TAIRT1 122.73	TAIRT2 77.186
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ORIFICE AIR	TEMP 80.875	DELTAP 2.0329	ORFP 53.316	FLOW 1993.4
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CELL TEMP. = 74.169 HEATER TEMP = 115.20 COOLER TEMP = 69.802

575



NASA-LENS PRELIMINARY DATA 04/13/76 CADDEII REC 04/13/76 21:33:39.786 FAC SEX15 PGM C003 RDG 3356

LEANOUT 25 BTDC I & I 80 DEG. HUM=30% 3/4T LEAN MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR TEMP 81.307 PRESS 29.233 CFM 10.121 DRY FLOW 43.186 VAPOR FLOW 0.29147 PRESS TOTAL 14.358

COMB. FUEL TEMP 78.165 PRESS 5.8389 DENSITY 44.596 TURBO FLOW 3.9673 FLOW TRON 3.9364 FPIP 6.1554

COOLING AIR TEMP 81.949 JDEL-HOOD -0.090500 DEL-HOOD 0.79845 FLOW 0.00000 REL-HUM 29.117 DEW-POINT 46.151

REL-HUM 1 29.117 2 62.266 HUMIDITY 47.244 H2O VAPOR CORRECTED HP 1.0849 0.31911

ENG. COND. F/A DRY 0.091150 F/A WET 0.090539 EQU. RATIO 1.3504 PPM-1 582.96 RPM-2 580.62 TORQUE 2.7836 BHP 0.30897

WET CORRECTION FACTOR = 0.88787 EXHAUST MOLE. WT. = 26.834 EXHAUST DENSITY = 0.069479 EXHAUST FLOW RATE = 682.42

MEASURED CONC. PART PER MILLION WET HC PPM 25598. NOX PPM 9.2469 CO DRY 7.0451 CO2 DRY 8.4375 O2 DRY 2.8821  
CORRECTED CONC. TO WET BASIS CO DRY 6.2552 CO2 DRY 7.4914 O2 DRY 2.5589

EMISSION RATE HC 0.62713 NOX 0.00075092 CO 3.0990  
EMISSION MASS/MODE 0.010452 1.2515E-05 0.051651  
EMISSION MASS/RATED HP 6.5326E-05 7.3221E-08 0.00032282  
MODE EMISS./STD. CYCLE % 3.4382 0.0052147 0.76861

CAL. FUEL AIR RATIO = 0.087615 MEAS. FUEL AIR RATIO = 0.091150 DIFF MEAS. & CAL. F/A PERCENT = -3.8785

CYL TEMP DEG.F CYL-1 237.97 CYL-2 248.44 CYL-3 226.43 CYL-4 228.25

EXT GAS TEMP DEG.F EXT-1 -39.084 EXT-2 -126.15 EXT-3 -454.00 EXT-4 184.89 SFXT-1 354.51 SEXT-2 353.07

ENGINE OIL EOILT 139.78 SOILT 283.43 OILP 47.433 MANIFOLD PRESSURE = 10.787

DYNO COND. TORQUE 2.4338 RPM 579.36 CYL. BACK PRESSURE = 28.492

INDUCTION AIR IAIRT1 81.773 IAIRT2 81.307 TAIRT1 37.721 TAIRT2 79.519

ORIFICE AIR TEMP 82.302 DELTAP 2.0199 ORFP 53.391 FLOW 1984.8

CELL TEMP. = 75.057 HEATER TEMP = 145.73 COOLER TEMP = 92.526

576

NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDEII REC 04/13/76 21:37:07.399 FAC SEX15 PGM C003 RDG 3358  
 LEANOUT 25 BTDC I & T 80 DEG. HUM=30% 3/4T LEAN MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR TEMP 81.756 PRESS 29.225 CFM 10.552 DRY FLOW 45.040 VAPOR FLOW 0.30376 PRESS TOTAL 14.358

COMB. FUEL TFMP 79.084 PRESS 5.8419 DENSITY 44.572 TURBO FLOW 3.9618 FLOW TRON 3.9214 FPIP 6.2100

COOLING AIR TEMP 82.125 INLET-HOOD -0.089116 INLET-HOOD 0.79291 FLOW 0.00000 REF-HUM 28.673 DEW-POINT 46.131

REF-HUM 1 28.673 2 35.740 HUMIDITY 47.210 % H2O VAPOR CORRECTED HP 1.0841 0.39334

ENG. COND. F/A DRY 0.087065 F/A WET 0.086482 EQU. RATIO 1.2995 RPM-1 596.76 RPM-2 595.92 TORQUE 3.3503 BHP 0.38068

WET CORRECTION FACTOR = 0.87400 EXHAUST MOLE. WT. = 27.133 EXHAUST DENSITY = 0.070255 EXHAUST FLOW RATE = 701.23

MEASURED CONC. PART PER MILLION WET HC PPM 17030. NOX PPM 13.021 CO DRY 6.9081 CO2 DRY 9.2393 O2 DRY 1.9210  
 CORRECTED CONC. TO WET BASIS CO DRY 6.0377 CO2 DRY 8.0751 O2 DRY 1.6789

EMISSION RATE HC 0.42873 NOX 0.0010866 CO 3.0737  
 EMISSION MASS/MODE 0.0071455 1.8110E-05 0.051229  
 EMISSION MASS/RATED HP 4.4659E-05 1.1318E-07 0.00032018  
 MODE EMIS./STD. CYCLE % 2.3505 0.0075456 0.76233

CAL. FUEL AIR RATIO = 0.085531 MEAS. FUEL AIR RATIO = 0.087065 DIFF MEAS. & CAL. F/A PERCENT = -1.7624

CYL TEMP DEG. F CYL-1 225.68 CYL-2 234.03 CYL-3 209.14 CYL-4 212.15

EXT GAS TEMP DEG. F EXT-1 262.52 EXT-2 -237.60 EXT-3 -454.00 EXT-4 104.09 SEXT-1 324.42 SEXT-2 323.29

ENGINE OIL EOILT 134.69 SOILT -101.20 OILT 48.081 MANIFOLD PRESSURE = 10.637

DYNO COND. TORQUE 1.0441 RPM 600.24 CYL. BACK PRESSURE = 28.589

INDUCTION AIR TAIRT1 82.258 TAIRT2 81.756 TAIRT1 159.69 TAIRT2 79.311

ORIFICE AIR TEMP 82.882 DELTAP 3.9882 ORFP 53.430 FLOW 2750.1

CELL TEMP. = 75.314 HEATER TEMP = 153.33 COOLER TEMP = 92.676

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577

NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDELL REC 04/13/76 21:59:39.810 FAC SEX15 PGM C003 RDG 3361

LEANOUT 25 BTDC I & T 80 DEG HUM=30% NEUTRAL MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.240 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR TEMP 79.587 PRESS 29.233 CFM 20.740 DRY FLOW 88.646 VAPOR FLOW 0.59817 PRESS TOTAL 14.370

COMB. FUEL TEMP 74.000 PRESS 5.7423 DENSITY 44.806 TURBO FLOW 10.267 FLOW TRON 8.7699 FPIP 6.1683

COOLING AIR TEMP 80.037 UDEL-HOOD -0.077492 DEL-HOOD 0.80869 FLOW 0.00000 REL-HUM 30.815 DEW-POINT 46.166

REL-HUM 1 30.815 2 58.890 HUMIDITY 47.234 % H2O VAPOR CORRECTED HP 1.0847 1.0711

ENG. COND. F/A DRY 0.098931 F/A WET 0.098268 EQU. RATIO 1.4766 RPM-1 1205.6 RPM-2 1206.4 TORQUE 4.5254 BHP 1.0388

WET CORRECTION FACTOR = 0.85697 EXHAUST MOLE. WT. = 26.295 EXHAUST DENSITY = 0.068087 EXHAUST FLOW RATE = 1439.5

MEASURED CONC. PART PER MILLION WET HC PPM 10166. NOX PPM 15.612 CO DRY 11.210 PER CENT CO2 DRY 7.8789 O2 DRY 0.34763  
CORRECTED CONC. TO WET BASIS CO DRY 9.7189 PER CENT CO2 DRY 6.8308 O2 DRY 0.30139

EMISSION RATE HC 0.52538 NOX 0.0026744 CO 10.157  
EMISSION MASS/MODE 0.096319 0.00049030 1.8622  
EMISSION MASS/RATED HP 0.00060199 3.0644E-06 0.011639  
MODE EMIS./STD. CYCLE % 31.684 0.20429 27.711

CAL. FUEL AIR RATIO = 0.098681 MEAS. FUEL AIR RATIO = 0.098931 DIFF MEAS. & CAL. F/A PERCENT = -0.25244

CYL TEMP DEG.F CYL-1 266.42 CYL-2 278.22 CYL-3 264.16 CYL-4 264.73

EXT GAS TEMP DEG.F EXT-1 1435.6 EXT-2 -268.71 EXT-3 -454.00 EXT-4 14.610 SEXT-1 478.38 SEXT-2 479.47

ENGINE OIL EOILT 143.14 SOILT 60.702 OILP 58.018 MANIFOLD PRESSURE = 8.3118

DYMO COND. TORQUE 5.0549 RPM 1200.0 CYL. BACK PRESSURE = 29.059

INDUCTION AIR IAIRT1 79.993 IAIRT2 79.587 TAIRT1 119.70 TAIRT2 79.008

ORIFICE AIR TEMP 79.896 DELTAP 4.9318 ORFP 53.312 FLOW 3051.7

CELL TEMP. = 72.969 HEATER TEMP = 128.87 COOLER TEMP = 88.020

578

NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDEII REC 04/13/76 22:00:01.124 FAC SEX15 PGM C003 RDG 3362

LEANOUT 25 BTDC I & T 80 DEG HUM=30% NEUTRAL MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.240 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	79.728	29.237	20.911	89.300	0.60360	14.365

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	73.983	5.7408	44.806	10.251	8.7249	6.1641

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	80.161	-0.081090	0.82584	0.00000	30.714	46.201

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	30.714	-10.235	47.315	1.0865 0.95825

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.097702	0.097046	1.4582	1204.9	1204.6	4.0504	0.92920

WET CORRECTION FACTOR = 0.86188 EXHAUST MOLE. WT. = 26.378 EXHAUST DENSITY = 0.068299 EXHAUST FLOW RATE = 1444.1

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	CO2 DRY
	HC PPM	NOX PPM			
	10380.	15.697	11.259	7.9281	0.34453
CORRECTED CONC. TO WET BASIS			9.7340	6.8330	0.29695

EMISSION RATE	HC	NOX	CO
	0.53812	0.002974	10.174
	0.026906	0.0001487	0.50868
	0.00016816	8.4293E-07	0.0031793
MODE EMISS./STD. CYCLE %	8.8507	0.056195	7.5697

CAL. FUEL AIR RATIO = 0.098791 MEAS. FUEL AIR RATIO = 0.097702 DIFF MEAS. & CAL. F/A PERCENT = 1.1138

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	266.50	277.79	264.45	265.01

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	646.24	-286.06	-454.00	-454.00	475.37	475.28

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 8.3256
	142.83	22.034	58.098	

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.302
	5.6526	1190.3	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	80.143	79.728	187.70	79.281

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	79.932	1.0166	53.307	1425.7

CELL TEMP. = 72.827 HEATER TEMP = 117.19 COOLER TEMP = 84.575

579

NASA-LEWIS		PRELIMINARY DATA		04/13/76		CADDETI		REC 04/13/76 22:03:07.095		FAC SEX15		PGW C003		RDG 3363	
LEANOUT 25 BTDC I & T 80 DEG		HUM=30%		NEUTRAL		MODE = 2.0000		NO. SCANS = 5							
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.240		RATED HP. = 160.00		HC RATIO = 2.1250							
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL									
	80.178	29.230	20.465	87.342	0.58915	14.361									
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP									
	74.595	5.7447	44.790	9.9935	8.4998	6.1659									
COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT									
	80.452	-0.077769	0.77824	0.00000	30.195	46.141									
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP										
	30.196	55.173	47.217	1.0843	1.6039										
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP								
	0.097317	0.096665	1.4525	1205.1	1205.0	6.7757	1.5547								
WET CORRECTION FACTOR = 0.86211		EXHAUST MOLE. WT. = 26.404		EXHAUST DENSITY = 0.068366		EXHAUST FLOW RATE = 1410.5									
MEASURED CONC.	PART PER MILLION WET		PER CENT												
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY										
	9795.0	17.450	11.154	7.9838	0.31567										
CORRECTED CONC. TO WET BASIS			9.6160	6.8829	0.27214										
EMISSION RATE	HC	NOX	CO												
	0.49599	0.0029289	9.8470												
EMISSION MASS/MODE	0.090931	0.00053697	1.8053												
EMISSION MASS/RATED HP	0.00056832	3.3561E-06	0.011283												
MODE EMIS./STD. CYCLE %	29.911	0.22374	26.864												
CAL. FUEL AIR RATIO = 0.098268		MEAS. FUEL AIR RATIO = 0.097317		DIFF MEAS. & CAL. F/A PERCENT = 0.97758											
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4											
	266.67	275.55	266.44	267.19											
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2									
	1339.9	3.4651	-454.00	74.899	449.65	449.47									
ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 8.2507											
	141.69	82.306	58.314												
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.104												
	3.3267	1203.5													
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2											
	80.584	80.178	150.92	79.487											
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW											
	80.328	0.070107	53.419	264.46											
CELL TEMP. = 73.474		HEATER TEMP = 123.01		COOLER TEMP = 86.913											

580

NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDEII REC 04/13/76 22:03:28.930 FAC SEX15 PG4 C003 RDG 3364

LEANOUT 25 BTDC I & T 80 DEG HUM=30% NEUTRAL MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.240 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR TEMP 80.073 PRESS 29.230 CFM 20.792 DRY FLOW 88.820 VAPOR FLOW 0.60129 PRESS. TOTAL 14.359

COMB. FUEL TEMP 74.639 PRESS 5.7417 DENSITY 44.789 TURBO FLOW 10.144 FLOW TRON 8.6679 FPIP 6.1659

COOLING AIR TEMP 80.610 UDEL-HOOD -0.084411 DFL-HOOD 0.80177 FLOW 0.00000 REL-HUM 30.404 DEW-POINT 46.231

REL-HUM 1 2 HUMIDITY % H2O VAPOR CORRECTED HP  
30.404 1.2701 47.388 1.0882 1.5141

ENG. COND. F/A DRY F/A WET EQU. RATIO RPM-1 RPM-2 TORQUE BHP  
0.097589 0.096933 1.4565 1204.4 1205.5 6.4006 1.4678

WET CORRECTION FACTOR = 0.85198 EXHAUST MOLE. WT. = 26.386 EXHAUST DENSITY = 0.068319 EXHAUST FLOW RATE = 1435.8

MEASURED CONC. PART PER MILLION WET PER CENT  
HC PPM NOX PPM CO DRY CO2 DRY O2 DRY  
10484. 16.855 11.210 7.9481 0.36392  
CORRECTED CONC. TO WET BASIS 9.6628 6.8511 0.31369

EMISSION RATE HC NOX CO  
0.54039 0.0028797 10.072  
EMISSION MASS/MODE 0.027019 0.00014399 0.50360  
EMISSION MASS/RATED HP 0.00016887 8.9991E-07 0.0031475  
MODE EMIS./STD. CYCLE % 8.8879 0.059994 7.4941

CAL. FUEL AIR RATIO = 0.098622 MEAS. FUEL AIR RATIO = 0.097589 DIFF MEAS. & CAL. F/A PERCENT = 1.0590

CYL TEMP DEG. F CYL-1 CYL-2 CYL-3 CYL-4  
266.65 275.50 266.50 267.40

EXT GAS TEMP DEG. F EXT-1 EXT-2 EXT-3 EXT-4 SEXT-1 SEXT-2  
731.27 7.3079 -454.00 -454.00 446.84 446.75

ENGINE OIL FOILT SOILT OILP MANIFOLD PRESSURE = 8.2710  
141.67 -36.296 58.314

DYNO COND. TORQUE RPM CYL. BACK PRESSURE = 29.602  
10.167 1201.3

INDUCTION AIR IAIRT1 IAIRT2 TAIRT1 TAIRT2  
80.452 80.073 105.57 78.873

ORIFICE AIR TEMP DELTAP ORFP FLOW  
80.267 2.0031 53.232 1980.7

CELL TEMP. = 73.645 HEATER TEMP = 112.75 COOLER TEMP = 75.075

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NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDEII REC 04/13/76 22:26:47.046 FAC SEX15 PGM C003 RDG 3372

LEANOUT 25 BTDC 1 & T 80 DEG HUM=30% NEUTRAL MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.240 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	80.434	29.237	12.057	51.549	0.34835	14.362

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	74.009	5.8062	44.805	6.1853	5.0165	6.1890

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	81.773	-0.070573	0.85376	0.00000	30.002	46.191

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	30.002	49.849	47.304	1.0862	0.89445

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.097316	0.096662	1.4525	598.92	599.64	7.6008	0.86676

WET CORRECTION FACTOR = 0.87714 EXHAUST MOLE. WT. = 26.404 EXHAUST DENSITY = 0.068367 EXHAUST FLOW RATE = 832.48

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	33807.	5.2345	9.6751	6.6161	3.2801
CORRECTED CONC. TO WET BASIS			8.4864	5.8032	2.8771

	HC	NOX	CO
EMISSION RATE	1.0104	0.00051856	5.1290
EMISSION MASS/MODE	0.016839	8.6426E-06	0.085483
EMISSION MASS/RATED HP	0.00010525	5.4016E-08	0.00053427
MODE EMIS./STD. CYCLE %	5.5393	0.0036011	1.2721

CAL. FUEL AIR RATIO = 0.099082 MEAS. FUEL AIR RATIO = 0.097316 DIFF MEAS. & CAL. F/A PERCENT = 1.8157

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	305.88	317.59	303.52	320.92

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	330.93	-46.731	-430.97	383.33	634.11	634.76

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 11.633
	153.42	349.72	45.965	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.318
	7.6184	597.66	

INDUCTION AIR	TAIPT1	TAIPT2	TAIRT1	TAIRT2
	80.857	80.434	166.52	78.581

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	80.849	2.0152	53.270	1985.2

CELL TEMP. = 73.965 HEATER TEMP = 95.375 COOLER TEMP = 86.330

582

NASA-LEWIS PRELIMINARY DATA 04/13/76 CADDEII REC 04/13/76 22:29:58.077 FAC SFX15 PGM C003 RDG 3374

LEANOUT 25 BTDC I.C.T 80 DEG HUM=30% NEUTRAL MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.240 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR TEMP 80.857 PRESS 29.244 CFM 12.369 DRY FLOW 52.907 VAPOR FLOW 0.35740 PRESS TOTAL 14.362

COMB. FUFL TEMP 76.103 PRESS 5.8017 DENSITY 44.750 TURBO FLOW 5.8704 FLOW TRON 5.1185 FPIP 5.1977

COOLING AIR TEMP 82.064 UDEL-HOOD -0.088839 DEL-HOOD 0.82944 FLOW 0.00000 REL-HUM 29.579 DEW-POINT 46.181

REL-HUM 1 2 HUMIDITY % H2O VAPOR CORRECTED HP  
29.579 50.755 47.286 1.0859 0.67464

ENG. COND. F/A DRY 0.096745 F/A WET 0.096096 EQU. RATIO 1.4440 RPM-1 602.04 RPM-2 598.44 TORQUE 5.7006 BHP 0.65346

WET CORRECTION FACTOR = 0.87954 EXHAUST MOLE WT. = 26.443 EXHAUST DENSITY = 0.068466 EXHAUST FLOW RATE = 852.72

MEASURED CONC. PART PER MILLION WET HC PPM 34654. NOX PPM 4.9165 CO DRY 9.3305 CO2 DRY 6.7535 O2 DRY 3.4669  
CORRECTED CONC. IN WET BASIS 8.2065 5.9400 3.0493

EMISSION RATE HC 1.0609 NOX 0.00049890 CO 5.0805  
EMISSION MASS/MODE 0.017681 8.3149F-06 0.084675  
EMISSION MASS/RATED HP 0.00011051 5.1968F-08 0.00052922  
MODE EMIS./STD. CYCLE % 5.8162 0.0034646 1.2600

CAL. FUEL AIR RATIO = 0.097670 MEAS. FUEL AIR RATIO = 0.096745 DIFF MEAS. & CAL. F/A PERCENT = 0.95569

CYL TEMP DEG.F CYL-1 244.94 CYL-2 256.10 CYL-3 230.34 CYL-4 239.17

EXT GAS TEMP DEG.F EXT-1 856.85 EXT-2 -172.26 EXT-3 -454.00 EXT-4 261.31 SEXT-1 51.27 SEXT-2 550.18

ENGINE OIL EOILT 148.94 SOILT -217.39 OILP 46.973 MANIFOLD PRESSURE = 11.367

DYNO COND. TORQUE 6.3150 RPM 595.38 CYL. BACK PRESSURE = 28.960

INDUCTION AIR IAIRT1 81.351 IAIRT2 80.857 TAIRT1 153.72 TAIRT2 78.297

ORIFICE AIR TEMP 81.439 DELTAP 3.9645 DRFP 53.347 FLOW 2745.6

CELL TEMP. = 74.453 HEATED TEMP = 91.331 COOLER TEMP = 79.725

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NASA-LEWIS PRELIMINARY DATA 04/14/76 CADDELL REQ 04/14/76 10:42:29.331 FAC SEX15 PGM C003 RDG 3376

LFANOUT 25 RTDC TO CL APP 80 DEG. HUM=30% MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.200 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	80.249	29.232	215.05	952.85	6.3289	14.843

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	77.599	5.3828	44.711	82.088	79.757	6.0306

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	81.183	3.0394	3.9499	10031.	30.667	46.611

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	30.667	55.758	45.495	1.0677	155.98

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.083704	0.083151	1.2493	2687.9	2689.1	286.23	146.49

WET CORRECTION FACTOR = 0.84702 EXHAUST MOLE. WT. = 27.389 EXHAUST DENSITY = 0.070917 EXHAUST FLOW RATE = 14649.

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	1592.4	271.95	8.2395	10.656	0.12311
CORRECTED CONC. TO WET BASIS			6.9791	9.0252	0.10428

	HC	NOX	CO
EMISSION RATE	0.89007	0.47410	74.228
EMISSION MASS/MODE	0.0044503	0.0023705	0.37114
EMISSION MASS/RATED HP	2.7815E-05	1.4815E-05	0.0023196
MODE EMIS./STD. CYCLE %	1.4639	0.98770	5.5229

CAL. FUEL AIR RATIO = 0.084636 MEAS. FUEL AIR RATIO = 0.083704 DIFF MEAS. & CAL. F/A PERCENT = 1.1136

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	399.22	412.89	393.94	393.00

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1326.7	85.579	92.419	685.14	1227.5	1216.3

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.011
	143.20	165.57	76.024	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.286
	294.50	2634.4	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	80.134	80.249	-6.4663	77.193

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	86.900	2.0099	54.506	1971.8

CELL TEMP. = 78.095 HEATER TEMP = 89.735 COOLER TEMP = 78.980

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NASA-LEWIS PRELIMINARY DATA 04/14/76 CADDEII REC 04/14/76 10:49:50.152 FAC SEX15 PGM C003 RDG 3377  
 LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=30% MODE = 4.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.200 RATE HP. = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	81.007	29.227	181.04	794.02	5.3059	14.666	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	77.873	5.4620	44.704	67.979	65.283	6.1128	
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	82.354	2.9522	3.9059	9869.0	29.738	46.451	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	29.738	62.456	46.776	1.0741	125.48		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.082219	0.081673	1.2272	2438.3	2439.7	260.56	120.97
WET CORRECTION FACTOR = 0.84681		EXHAUST MOLE. WT. = 27.505		EXHAUST DENSITY = 0.071216		EXHAUST FLOW RATE = 12140.	
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	1782.7	695.11	7.5973	10.995	0.12765		
CORRECTED CONC. TO WET BASIS			6.4335	9.3106	0.10810		
EMISSION RATE	HC	NOX	CO				
	0.77697	1.3042	56.705				
EMISSION MASS/MODE	0.064748	0.083687	4.7254				
EMISSION MASS/RATED HP	0.00040467	0.00052304	0.029534				
MODE FMIS./STD. CYCLE %	21.299	34.869	70.319				
CAL. FUEL AIR RATIO = 0.083163		MEAS. FUEL AIR RATIO = 0.082219		DIFF MEAS. & CAL. F/A PERCENT = 1.1480			
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	356.29	379.82	417.57	414.65			
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	1344.6	-454.00	-8.9022	718.03	1243.4	1239.0	
ENGINE OIL	FOILT	SOILT	OTLP	MANIFOLD PRESSURE = 27.097			
	174.37	109.49	73.599				
DYMO COND.	TORQUE	RPM	CYL. RACK PRESSURE = 29.392				
	260.08	2384.3					
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2			
	80.831	81.007	-47.939	76.173			
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW			
	89.770	1.0202	54.366	1416.7			
CELL TEMP. = 80.769		HEATER TEMP = 89.659		COOLER TEMP = 76.482			

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NASA-LEWIS PRELIMINARY DATA 04/14/76 CADDEII REC 04/14/76 10:53:07.510 FAC SEX15 PGM C003 RDG 3378  
 LEANCUT 25 BTDC TO CL APP 80 DEG. HUM=30% MODE = 5.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.200 RATED HP. = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	79.737	29.188	110.12	476.93	3.1830	14.463	
CCMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	79.146	5.5830	44.570	44.233	42.016	6.1452	
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	80.725	2.9123	3.8464	9794.0	30.531	46.051	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	30.531	71.625	46.718	1.0728	67.517		
ENG. COND.	F/A DRY	F/A WET	FQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.088098	0.087514	1.3149	2357.0	2357.5	144.74	64.956
WET CORRECTION FACTOR = 0.85568				EXHAUST MILE. WT. = 27.057		EXHAUST DENSITY = 0.070056	
				EXHAUST FLOW RATE = 7453.0			
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	2242.0	167.09	9.2006	10.012	0.14965		
CORRECTED CONC. TO WET BASIS			7.8727	8.5557	0.12806		
	HC	NOX	CO				
EMISSION RATE	0.59988	0.14819	42.598				
EMISSION MASS/MODE	0.059988	0.014819	4.2598				
EMISSION MASS/RATED HP	0.00037492	9.2618E-05	0.026624				
MODE EMIS./STD. CYCLE %	19.733	6.1746	63.390				
CAL. FUEL AIR RATIO = 0.087356				MEAS. FUEL AIR RATIO = 0.088098		DIFF MEAS. & CAL. F/A PERCENT = -0.84213	
CYL TEMP. DEG. F	CYL-1	CYL-2	CYL-3	CYL-4			
	331.67	340.96	345.59	345.94			
EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	1487.5	-454.00	-264.66	505.27	1097.0	1097.6	
ENGINE OIL	FILT	SOILT	OILP	MANIFOLD PRESSURE = 18.759			
	185.27	138.31	73.171				
DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.337				
	151.38	2326.1					
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2			
	79.640	79.737	-81.098	75.490			
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW			
	88.596	1.0503	54.364	1437.3			
CELL TEMP. =	80.602	HEATER TEMP = 90.910		COOLER TEMP = 75.557			

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NASA-LEWIS PRELIMINARY DATA 04/14/76 CADDELY REC 04/14/76 10:59:07.214 FAC SEX15 PGM C003 RDG 3379

LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=30% MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.200 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	78.686	29.206	213.13	945.32	6.3501	14.826

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	76.510	5.4257	44.739	80.683	79.406	6.0384

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT
	80.416	2.9688	3.9136	9900.1	32.603	46.876

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	32.603	42.500	47.022	1.0798

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.083999	0.083438	1.2537	2691.9	2693.1	282.06	144.57

WET CORRECTION FACTOR = 0.84788 EXHAUST MOLE. WT. = 27.366 EXHAUST DENSITY = 0.070858 EXHAUST FLOW RATE = 14551.

MEASURED CONC.	PART PER MILLION WET		PER CENT
	HC PPM	NOX PPM	
	1727.7	228.98	10.645
CORRECTED CONC. TO WET BASIS			9.0254

	HC	NOX	CO
EMISSION RATE	0.90252	0.39651	73.525
EMISSION MASS/MODE	0.0045126	0.0019825	0.36762
EMISSION MASS/RATED HP	2.8204E-05	1.2391E-05	0.0022976
MODE EMIS./STD. CYCLE %	1.4844	0.82606	5.4706

CAL. FUEL AIR RATIO = 0.084750 MFAS. FUEL AIR RATIO = 0.083999 DIFF MEAS. & CAL. F/A PERCENT = 0.89479

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	407.35	426.62	408.14	412.64

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1523.9	-288.05	130.98	989.03	1303.2	1298.5

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.112
	188.06	200.71	73.639	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.310
	297.75	2623.3	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	78.501	78.686	-79.489	75.940

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	87.678	0.070207	54.272	262.99

CELL TEMP. = 80.099 HEATER TEMP = 89.949 COOLER TEMP = 76.909

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NASA-LEWIS PRELIMINARY DATA 04/14/76 CADDELL REC 04/14/76 11:01:56.789 FAC SEX15 PGM C003 RDG 3380

LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=30% MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.200 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	79.234	29.255	179.55	787.17	5.2997	14.657

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	77.157	5.4830	44.722	65.179	63.420	6.0969

COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	80.760	3.0111	3.8691	9978.9	31.727	46.631

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	31.727	54.569	47.128	1.0822	124.65

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.080567	0.080029	1.2025	2431.3	2431.7	260.08	120.39

WET CORRECTION F. TOR = 0.84038 EXHAUST MOLE. WT. = 27.635 EXHAUST DENSITY = 0.071554 EXHAUST FLOW RATE = 11961.

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM	CO DRY
	1678.6	7.4808
	623.54	11.127
CORRECTED CONC. TO WET BASIS		9.3510
		0.097325

	HC	NOX	CO
EMISSION RATE	0.72080	0.88756	54.652
EMISSION MASS/MODE	0.060067	0.073963	4.5543
EMISSION MASS/RATED HP	0.00037542	0.00046227	0.028464
MODE EMIS./STD. CYCLE %	19.759	30.818	67.772

CAL. FUEL AIR RATIO = 0.082819 MEAS. FUEL AIR RATIO = 0.080567 DIFF MEAS. & CAL. F/A PERCENT = 2.7947

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	374.77	393.57	417.75	421.22

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1627.1	-454.00	264.62	981.41	1260.5	1258.4

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 27.193
	186.76	212.49	72.851	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.347
	268.72	2367.5	

INDUCTION AIR	TAIPT1	TAIRT2	TAIRT1	TAIRT2
	79.084	79.234	-83.355	76.036

ORIFICE AIR	TEMP	DELTAP	OPF2	FLOW
	88.378	1.0670	54.309	1448.8

CELL TEMP. = 81.404 HEATED TEMP = 89.500 COOLER TEMP = 77.300

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NASA-LEWIS PRELIMINARY DATA 04/14/76 CADDEII REC 04/14/76 11:05:15.699 FAC SEX15 PGM C003 RDG 3381  
 LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=30% MODE = 5.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.200 RATED HP. = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	79.967	29.186	109.54	473.83	3.1572	14.463	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	79.534	5.5655	44.660	43.567	42.178	6.0585	
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	81.210	2.9566	3.8414	9877.3	30.251	46.006	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	30.251	56.952	46.641	1.0710	67.017		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.089015	0.088426	1.3286	2351.1	2352.4	144.30	64.461
WET CORRECTION F	TOR = 0.85886	EXHAUST MOLE. WT. = 26.989	EXHAUST DENSITY = 0.069881	EXHAUST FLOW RATE = 7429.3			
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	2060.3	154.78	9.2474	10.073	0.14357		
CORRECTED CONC. TO WET BASIS			7.9422	8.6509	0.12331		
EMISSION RATE	HC	NOX	CO				
	0.54951	0.13684	42.838				
EMISSION MASS/MODE	0.054951	0.013684	4.2838				
EMISSION MASS/RATED HP	0.00034344	8.5522E-05	0.026774				
MODE EMIS./STD. CYCLE %	18.076	5.7015	63.747				
CAL. FUEL AIR RATIO = 0.087262	MEAS. FUEL AIR RATIO = 0.089015	DIFF MEAS. & CAL. F/A PERCENT = -1.9697					
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	336.32	350.95	349.41	351.16			
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	952.20	1454.00	140.92	822.26	1112.3	1113.8	
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.781			
	197.48	189.51	72.351				
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.236				
	147.25	2301.6					
INDUCTION AIR	IAIRT1	IAIPT2	TAIRT1	TAIPT2			
	79.808	79.967	-69.538	76.091			
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW			
	89.207	1.1226	54.839	1484.4			
CELL TEMP. = 82.433	HEATER TEMP. = 89.279	COOLER TEMP. = 78.838					

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NASA-LEWIS PRELIMINARY DATA 04/14/76 CADDEII REC 04/14/76 11:13:34.923 FAC SEX15 PGM C003 RDG 3382  
 LEANOUT 25 BTDC TO CI APP 80 DEG. HUM=30% MODE = 3.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.200 RATED HP. = 160.00 HC RATIO = 2.1250  
 COMB. AIR TEMP 79.931 PRESS 29.188 CEM 212.35 DRY FLOW 941.83 VAPOR FLOW 6.2994 PRESS TOTAL 14.823  
 COMB. FUEL TEMP 77.909 PRESS 5.4314 DENSITY 44.703 TURBO FLOW 62.702 FLOW TRON 76.733 FPIP 6.0198  
 COOLING AIR TEMP 82.381 UDEL-HOOD 2.9868 DEL-HOOD 3.9986 FLOW 9933.7 REL-HUM 31.157 DEW-POINT 46.756  
 REL-HUM 1 31.157 2 -16.106 HUMIDITY 46.819 % H2O VAPOR CORRECTED HP 1.0751 154.36  
 ENG. COND. F/A DRY 0.081472 F/A WET 0.080931 EQU. RATIO 1.2160 RPM-1 2698.2 RPM-2 2699.1 TORQUE 281.73 BHP 144.74  
 WFT CORRECTION FACTOR = 0.84654 EXHAUST MOLE. WT. = 27.554 EXHAUST DENSITY = 0.071369 EXHAUST FLOW RATE = 14360.  
 MEASURED CONC. PART PER MILLION WFT PER CENT  
 HC PPM 1532.4 NOX PPM 261.36 CO DRY 7.1258 CO2 DRY 11.343 O2 DRY 0.046185  
 CORRECTED CONC. TO WET BASIS 6.0323 9.6026 0.039097  
 EMISSION RATE HC 0.78997 NOX 0.44662 CO 62.889  
 EMISSION MASS/MODE 0.0039498 0.3022331 0.31445  
 EMISSION MASS/RATED HP 2.4687E-05 1.3957E-05 0.0019653  
 MODE EMIS./STD. CYCLE % 1.2993 0.93045 4.6792  
 CAL. FUEL AIR RATIO = 0.082129 MEAS. FUEL AIR RATIO = 0.081472 DIFF MEAS. & CAL. F/A PERCENT = 0.80651  
 CYL TEMP DEG.F CYL-1 425.31 CYL-2 446.88 CYL-3 422.16 CYL-4 434.57  
 EXT GAS TEMP DEG.F EXT-1 1193.2 EXT-2 -454.00 EXT-3 379.85 EXT-4 1069.9 SEXT-1 1341.0 SEXT-2 1337.8  
 ENGINE OIL EOILT 188.42 SOILT 213.00 OILP 73.499 MANIFOLD PRESSURE = 28.341  
 DYNO COND. TORQUE 289.24 RPM 2624.0 CYL BACK PRESSURE = 29.334  
 INDUCTION AIR IAIRT1 79.737 IAIRT2 79.931 TAIRT1 -70.568 TAIRT2 75.854  
 ORIFICE AIR TEMP 90.254 DELTAP 2.0101 ORFP 55.154 FLOW 1965.9  
 CELL TEMP. = 84.454 HEATER TEMP = 89.382 COOLER TEMP = 78.748

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NASA-LEWIS PRELIMINARY DATA 04/14/76 CADDETT REC 04/14/76 11:16:38.436 FAC SEX15 PGM C003 RDG 3383  
 LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=30% MODE = 4.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BARMETRIC PRESSURE = 29.210 RATED HP. = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	78.430	29.211	180.51	792.24	5.3154	14.677
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	76.608	5.4710	44.737	61.343	62.619	6.0954
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	80.152	2.9948	3.9114	9948.6	32.508	46.576
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP	
	32.508	75.887	46.965	1.0785	124.39	
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE
	0.079041	0.078514	1.1797	2435.2	2436.5	259.33
						BHP
						120.25
WET CORRECTION FACTOR = 0.84300		EXHAUST MOLE. WT. = 27.757		EXHAUST DENSITY = 0.071871		EXHAUST FLOW RATE = 11968.
MEASURED CONC.		PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	1600.4	801.62	6.4967	11.707	0.11713	
CORRECTED CONC. TO WET BASIS						
	HC	NOX	CO			
	EMISSION RATE	0.68761	1.1417	47.587		
	EMISSION MASS/MODE	0.057301	0.095141	3.9656		
	EMISSION MASS/RATED HP	0.00035813	0.00059463	0.024785		
	MODE EMIS./STD. CYCLE %	18.849	39.642	59.011		
CAL. FUEL AIR RATIO = 0.080485		MEAS. FUEL AIR RATIO = 0.079041		DIFF MEAS. & CAL. F/A PERCENT = 1.8273		
CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4		
	382.21	395.42	421.64	422.61		
EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1253.0	-454.00	603.99	1114.7	1291.6	1290.7
ENGINE OIL	EDILT	SOILT	OILP	MANIFOLD PRESSURE = 27.181		
	186.85	284.14	73.039			
DYNO COND.	TORQUE	RP	CYL. BACK PRESSURE = 29.355			
	261.13	2374.0				
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2		
	78.236	78.430	-58.571	76.170		
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW		
	88.491	0.091909	54.946	326.01		
CELL TEMP. =	82.812	HEATER TEMP =	89.479	COOLER TEMP =	79.530	

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NASA-LEWIS PRELIMINARY DATA 04/14/76 CADDETT REC 04/14/76 11:20:13.347 FAC SEX15 PGM C003 RDG 3384

LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=30% MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.210 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	79.305	29.219	109.08	471.49	3.1635	14.464

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	79.525	5.5724	44.660	42.980	40.450	6.1254

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	80.311	2.9643	3.7905	9891.8	31.131	46.191

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	31.131	58.836	46.967	1.0785	68.273

ENG. COND.	E/A DRY	E/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.085793	0.085221	1.2805	2352.2	2352.8	146.75	65.723

WET CORRECTION FACTOR = 0.85497 EXHAUST MOLE. WT. = 27.229 EXHAUST DENSITY = 0.070503 EXHAUST FLOW RATE = 7306.0

MEASURED CONC.	PART PER MILLION WET	PER CENT			
	HC PPM	CO DRY	CO2 DRY	O2 DRY	
	1940.4	199.00	8.2248	10.675	0.12555
CORRECTED CONC. TO WET BASIS			7.0319	9.1266	0.10734

EMISSION RATE	HC	NOX	CO
	0.50894	0.17301	37.299
EMISSION MASS/MODE	0.050894	0.017301	3.7299
EMISSION MASS/RATED HP	0.00031809	0.00010813	0.023312
MODE EMIS./STD. CYCLE %	16.741	7.2089	55.504

CAL. FUEL AIR RATIO = 0.084698 MEAS. FUEL AIR RATIO = 0.085793 DIFF. MEAS. & CAL. F/A PERCENT = -1.2757

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	337.81	352.77	350.57	349.61

FXT GAS TEMP DEG.F	FXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1157.4	-454.00	462.11	857.81	1126.9	1129.0

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.776
	187.26	209.96	72.735	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.276
	147.74	2284.1	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	79.181	79.305	24.734	76.531

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	89.259	3.0326	54.994	2389.4

CELL TEMP. = 83.225 HEATER TEMP = 89.645 COOLER TEMP = 81.288

NASA-LEWIS PRELIMINARY DATA 04/14/76 CADDELT REC 04/14/76 11:25:01.875 FAC SEX15 PGM C003 RDG 3385  
 LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=30% MODE = 3.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.210 RATED HP = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	79.561	29.218	213.18	945.86	6.3564	14.831	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	78.678	5.4368	44.683	76.983	75.470	5.9511	
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	81.580	2.9547	3.9241	9873.7	31.704	46.896	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	31.704	50.013	47.042	1.0802	154.77		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.079789	0.079257	1.1909	2700.9	2702.1	282.63	145.34
WET CORRECTION FACTOR = 0.84055				EXHAUST MOLE. WT. = 27.697		EXHAUST DENSITY = 0.071715	
				EXHAUST FLOW RATE = 14330.			
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	NO DRY		
	1560.6	368.70	7.1064	11.352	0.12197		
CORRECTED CONC. TO WET BASIS			5.9733	9.5420	0.10252		
EMISSION RATE	HC	NOX	CO				
	0.80283	0.62873	62.144				
EMISSION MASS/MODE	0.0040141	0.0031437	0.31072				
EMISSION MASS/RATED HP	2.5088E-05	1.9648E-05	0.0019420				
MODE EMIS./STD. CYCLE %	1.3204	1.3099	4.6238				
CAL. FUEL AIR RATIO = 0.081841				MEAS. FUEL AIR RATIO = 0.079789		DIFF MEAS. & CAL. F/A PERCENT = 2.5710	
CYL TEMP. DEG. F	CYL-1	CYL-2	CYL-3	CYL-4			
	406.66	427.33	415.31	415.88			
EXT GAS TEMP DEG. F	FXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	1645.1	-454.00	510.89	1135.6	1316.1	1311.7	
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.267			
	187.59	194.22	74.519				
DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.330				
	283.79	2631.6					
INDUCTION AIR	IAIRT1	IAIRT2	IAIRT1	TAIRT2			
	79.367	79.561	-37.530	75.939			
ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW			
	90.594	2.9850	55.086	2368.5			
CELL TEMP. = 84.928		HEATER TEMP = 89.887		COOLER TEMP = 79.938			

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NASA-LEWIS PRELIMINARY DATA 04/14/76 CADDEII REC 04/14/76 11:27:52.192 FAC SEX15 PGM C003 RDG 3386

LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=30% MCDE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.210 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	79.976	29.229	179.01	786.83	5.2996	14.687

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	79.490	5.4782	44.661	65.186	62.817	5.9975

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	82.037	2.9383	3.8586	9843.0	31.042	46.696

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	31.042	86.621	47.148	1.0827	124.42

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	PPM-1	RPM-2	TORQUE	BHP
	0.079836	0.079301	1.1916	2431.7	2433.0	259.33	120.07

WET CORRECTION FACTOR = 0.84666 EXHAUST MOLE. WT. = 27.594 EXHAUST DENSITY = 0.071705 EXHAUST FLOW RATE = 11923.

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM	CO2 DRY
	NOX PPM	O2 DRY
	CO DRY	
	1593.2	11.686
	846.48	0.13933
	6.5191	0.11797
	5.5195	

CORRECTED CONC. TO WET BASIS	HC	NOX	CO
EMISSION RATE	0.68193	1.2010	47.777
EMISSION MASS/MODE	0.056828	0.10009	3.9814
EMISSION MASS/RATED HP	0.00035517	0.00062553	0.024884
MODE EMIS./STD. CYCLE %	18.693	41.702	59.247

CAL. FUEL AIR RATIO = 0.080460 MEAS. FUEL AIR RATIO = 0.079836 DIFF MEAS. & CAL. F/A PERCENT = 0.78168

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	383.28	403.29	422.29	420.98

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	731.69	-454.00	672.92	1087.1	1275.7	1273.7

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 27.033
	186.32	79.159	72.871	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.409
	235.90	2358.8	

INDUCTION AIR	IAIRT1	IAIPT2	TAIRT1	TAIRT2
	79.808	79.976	-48.533	75.740

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	91.256	1.0549	55.067	1437.0

CELL TEMP. = 85.270 HEATER TEMP = 90.053 COOLER TEMP = 80.063

NASA-Lewis PRELIMINARY DATA 04/14/76 CADDETT REC 04/14/76 11:31:02.963 FAC SEX15 PGM CG03 RDG 3387

LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=30% MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BARMETRIC PRESSURE = 29.210 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	80.752	29.204	108.05	467.40	3.1438	14.465

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	81.756	5.5760	44.602	40.010	39.406	6.1253

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	82.258	2.9309	3.9059	9829.0	29.766	46.256

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	29.766	62.632	47.083	1.0812 67.105

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.084308	0.083745	1.2583	2349.5	2349.7	144.13	64.478

WET CORRECTION FACTOR = 0.84867 EXHAUST MOLE. WT. = 27.343 EXHAUST DENSITY = 0.070797 EXHAUST FLOW RATE = 7203.1

MEASURED CONC.	HC PPM	NOX PPM	CO DRY	PER CENT CO2 DRY	O2 DRY
	1983.5	207.22	8.2592	10.693	0.14309
CORRECTED CONC. TO WET BASIS			7.0093	9.0749	0.12144

	HC	NOX	CO
EMISSION RATE	0.51291	0.17762	36.655
EMISSION MASS/MODE	0.051291	0.017762	3.6655
EMISSION MASS/RATED HP	0.00032057	0.00011101	0.022909
MODE EMIS./STD. CYCLE %	16.872	7.4009	54.546

CAL. FUEL AIR RATIO = 0.084697 MEAS. FUEL AIR RATIO = 0.084308 DIFF MEAS. & CAL. F/A PERCENT = 0.46110

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	342.46	351.12	353.49	357.69

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1145.7	454.00	588.74	856.45	1121.4	1122.8

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	187.70	112.87	72.339	18.719

DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	150.32	2274.4	29.378

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	80.619	80.752	-53.174	76.092

ORIFICE AIR	TEMP	DELTAP	DRFP	FLOW
	91.909	1.0949	55.166	1462.7

CELL TEMP. = 85.893 HEATER TEMP = 90.219 COOLER TEMP = 81.163

NASA-LEWIS PRELIMINARY DATA 04/14/76 CADDEII REC 04/14/76 11:37:31.562 FAC SEX15 PGM C003 RDG 3388

LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=30% MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.210 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	78.183	29.215	212.40	941.44	6.3669	14.817

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	78.015	5.4491	44.700	78.330	73.678	6.0042

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	80.558	2.9774	3.8546	9916.1	33.349	47.036

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	33.349	-0.11201	47.341	1.0871	153.83

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.078262	0.077736	1.1581	2701.7	2702.8	281.19	144.65

WET CORRECTION FACTOR = 0.84662 EXHAUST MOLE. WT. = 27.821 EXHAUST DENSITY = 0.072034 EXHAUST FLOW RATE = 14180.

MEASURED CONC.	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1401.8	490.75	5.7508	12.131	0.12157
CORRECTED CONC. TO WET BASIS			4.8687	10.270	0.10292

	HC	NOX	CO
EMISSION RATE	0.71365	0.82813	50.124
EMISSION MASS/MODE	0.0035682	0.0041406	0.25062
EMISSION MASS/RATED HP	2.2301E-05	2.5879E-05	0.0015664
MODE EMIS./STD. CYCLE %	1.1738	1.7253	3.7294

CAL. FUEL AIR RATIO = 0.078719 MEAS. FUEL AIR RATIO = 0.078262 DIFF MEAS. & CAL. F/A PERCENT = 0.58499

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	426.15	436.61	430.20	436.52

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1035.4	-454.00	655.79	1144.2	1356.2	1351.6

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.277
	188.74	234.74	73.551	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.356
	279.98	2637.6	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	77.962	78.183	-36.616	75.936

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	89.853	1.0203	55.004	1415.4

CELL TEMP. = 84.463 HEATER TEMP = 90.425 COOLER TEMP = 80.995

NASA-LEWIS PRELIMINARY DATA 04/14/76 CADDEIT REC 04/14/76 11:40:55.928 FAC SEX15 PGM C003 RDG 3389  
 LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=30% MODE = 4.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.210 RATED HP = 160.00 HC RATIO = 2.1250  

CCMB. AIR	TEMP	PRESS	CFM	DRY-FLOW	VAPOR FLOW	PRESS TOTAL
	78.881	29.176	178.69	783.72	5.3126	14.666
CCMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	79.367	5.4911	44.565	62.413	60.705	6.1032
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	80.937	2.9046	3.9375	9779.4	32.334	46.826
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP	
	32.334	69.861	47.451	1.0896	123.70	
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE
	0.077458	0.076936	1.1561	2432.8	2434.3	258.00
						BHP
						119.51
WET CORRECTION FACTOR = 0.85031			EXHAUST MILE. WT. = 27.886		EXHAUST DENSITY = 0.072204	
			EXHAUST FLOW RATE = 11768.			
MEASURED CONC.	PART PER MILLION WET		PER CENT			
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	1442.0	1177.2	5.1761	12.428	0.20990	
CORRECTED CONC. TO WET BASIS			4.4013	10.567	0.17848	
EMISSION RATE	HC	NOX	CO			
	0.60925	1.6486	37.605			
EMISSION MASS/MODE	0.050771	0.13739	3.1337			
EMISSION MASS/RATED HP	0.00031732	0.00085867	0.019586			
MODE EMIS./STD. CYCLE %	16.701	57.244	46.633			
CAL. FUEL AIR RATIO = 0.077233			MEAS. FUEL AIR RATIO = 0.077458		DIFF MEAS. & CAL. F/A PERCENT = -0.29026	
CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4		
	390.82	411.50	425.22	423.30		
EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1297.5	1454.00	723.70	1275.0	1308.3	1306.1
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 27.102		
	186.79	302.76	72.835			
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.284			
	255.24	2367.8				
INDUCTION AIR	IAIRT1	IAIPT2	TAIRT1	TAIRT2		
	78.678	78.881	-65.415	76.099		
ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW		
	90.481	1.0796	55.015	1454.5		
CELL TEMP. =	84.568	HEATER TEMP. =	90.551	COOLER TEMP. =	80.640	

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NASA-LEWIS PRELIMINARY DATA 04/14/76 CADDELL REC 04/14/76 11:43:51.809 FAC SEX15 PGM C003 RDG 3390

LEANOUT 25 RTDC TO CL APP 80 DEG. HUM=30% MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.210 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRFSS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	79.623	29.205	107.97	467.10	3.1530	14.468

CCMB. FUEL	TEMP	PRFSS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	81.932	5.6040	44.598	39.546	38.020	6.0675

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	80.655	2.8722	3.9352	9717.9	31.001	46.356

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	31.001	55.938	47.252	1.0851	67.753

ENG. COND.	F/A DRY	F/A WET	EQV. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.081396	0.080850	1.2149	2354.6	2355.2	145.41	65.190

WET CORRECTION FACTOR = 0.84965 EXHAUST MOLE. WT. = 27.569 EXHAUST DENSITY = 0.071384 EXHAUST FLOW RATE = 7120.2

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	1871.7	326.19	6.7991	11.544	0.13723	
CORRECTED CONC. TO WET BASIS			5.7769	9.8083	0.11660	

	HC	NOX	CO
EMISSION RATE	0.47843	0.27638	29.852
EMISSION MASS/MODE	0.047843	0.027638	2.9862
EMISSION MASS/PATED HP	0.00029902	0.00017274	0.018664
MODE EMIS./STD. CYCLE %	15.738	11.515	44.438

CAL. FUEL AIR RATIO = 0.081221 MEAS. FUEL AIR RATIO = 0.081396 DIFF MEAS. & CAL. F/A PERCENT = -0.21544

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	348.20	356.85	360.26	362.06

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1485.0	-454.00	693.96	1053.6	1153.8	1155.7

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE
	187.96	200.58	72.407	18.726

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	135.66	2303.1	29.256

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	79.455	79.623	-51.251	76.188

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	91.003	2.0093	55.052	1964.2

CELL TEMP. = 84.858 HEATER TEMP = 95.003 COOLER TEMP = 81.492



NASA-LEWIS PRELIMINARY DATA 04/14/76 CADDELI REC 04/14/76 11:50:34.390 FAC SEX15 PGM C003 RDG 3391

LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=30% MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.210 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	80.187	29.228	213.25	944.90	6.3692	14.812

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	81.914	5.4518	44.598	72.950	71.182	6.0000

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	82.389	2.9920	3.7747	9943.5	31.114	46.941

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	31.114	50.141	47.184	1.0835	156.17

ENG. COND.	F/A DRY	F/A WET	EQV. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.075333	0.074828	1.1244	2706.4	2707.1	284.54	146.63

WET CORRECTION FACTOR = 0.93363 EXHAUST MLE. WT. = 28.062 EXHAUST DENSITY = 0.072658 EXHAUST FLOW RATE = 14072.

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	1397.7	560.44	5.7018	12.162	0.10655	
CORRECTED CONC. TO WET BASIS			4.7532	10.139	0.088823	

	HC	NOX	CO
EMISSION RATE	0.70612	0.93849	48.560
EMISSION MASS/MODE	0.0035306	0.0046924	0.24280
EMISSION MASS/RATED HP	2.2066E-05	2.9328E-05	0.0015175
MODE EMIS./STD. CYCLE %	1.1614	1.9552	3.6131

CAL. FUEL AIR RATIO = 0.078669 MEAS. FUEL AIR RATIO = 0.075333 DIFF MEAS. & CAL. F/A PERCENT = 4.4292

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	411.30	424.08	422.07	421.37

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1130.4	-454.00	730.00	1301.5	1334.9	1329.7

ENGINE OIL	EOILT	SOILT	DILP	MANIFOLD PRESSURE = 28.327
	188.70	208.45	74.235	

DYNO COND.	TORQUE	RPM	CYL BACK PRESSURE = 29.336
	275.92	2633.6	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	79.940	80.187	-28.961	75.945

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	91.700	1.0750	55.332	1449.8

CELL TEMP. = 86.094 HEATED TEMP = 93.148 COOLER TEMP = 79.326

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NASA-LEWIS PRELIMINARY DATA 04/14/76 CADREII REC 04/14/76 11:53:24.224 FAC SEX15 PGM C003 RDG 3392

LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=30% MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.210 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	80.655	29.162	178.41	782.89	5.3050	14.666

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	82.618	5.4968	44.580	60.361	59.472	6.0579

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	82.873	2.9851	3.8029	9930.6	30.499	46.816

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	30.499	44.260	47.433	1.0892	123.64

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.075965	0.075453	1.1338	2432.9	2433.3	257.37	119.22

WET CORRECTION FACTOR = 0.84197 EXHAUST MOL. WT. = 28.009 EXHAUST DENSITY = 0.072522 EXHAUST FLOW RATE = 11688.

MEASURED CONC.	PART PER MILLION WET		PER CENT
	HC PPM	NOX PPM	CO DRY
	1463.4	1177.2	5.2584
CORRECTED CONC. TO WET BASIS			CO DRY
			10.481

EMISSION RATE	HC	NOX	CO
	0.61408	1.6374	37.570
EMISSION MASS/MODE	0.051173	0.13645	3.1308
EMISSION MASS/RATED HP	0.00031983	0.00085282	0.019568
MODE EMIS./STD. CYCLE %	16.833	56.854	46.590

CAL. FUEL AIR RATIO = 0.077453 MEAS. FUEL AIR RATIO = 0.075965 DIFF MEAS. & CAL. F/A PERCENT = 1.9595

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	392.70	413.12	425.97	423.74

FXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1324.8	-554.00	738.00	1218.0	1297.1	1294.4

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 27.192
	187.07	178.73	72.611	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.298
	255.88	2373.9	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	80.452	80.655	72.612	75.806

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	92.083	1.0591	55.158	1438.7

CELL TEMP. = 86.935 HEATER TEMP = 91.801 COOLER TEMP = 81.128

NASA-LEWIS PRELIMINARY DATA 04/14/76 CAODEII REC 04/14/76 11:59:23.239 FAC SEX15 PGM C003 RDG 3393  
 LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=30% MODE = 5.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP, = 160.00 HC RATIO= 2.1250  

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	78.262	29.234	107.46	465.36	3.1458	14.469
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	82.556	5.6052	44.581	40.959	38.344	6.0777
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	79.905	2.8871	3.8049	9746.3	32.468	46.396
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP	
	32.468	65.060	47.320	1.0866	67.328	
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE
	0.082397	0.081843	1.2298	2350.1	2350.9	145.01
						BHP
						64.885
WET CORRECTION F	FOR = 0.85296	EXHAUST MOLE. WT. = 27.491	EXHAUST DENSITY = 0.071180	EXHAUST FLOW RATE = 7120.6		
MEASURED CONC.	PART PER MILLION WET		PER CENT			
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	1883.2	309.93	6.8773	11.544	0.13761	
CORRECTED CONC. TO WET BASIS			5.8661	9.8469	0.11738	
EMISSION RATE	HC	NOX	CO			
	0.48140	0.26262	30.325			
EMISSION MASS/MODE	0.048140	0.026262	3.0325			
EMISSION MASS/RATED HP	0.00030087	0.00016414	0.018953			
MODE EMIS./STD. CYCLE %	15.835	10.942	45.126			
CAL. FUEL AIR RATIO = 0.081352	MEAS. FUEL AIR RATIO = 0.082397	DIFF MEAS. & CAL. F/A PERCENT = -1.2677				
CYL. TEMP. DEG. F	CYL-1	CYL-2	CYL-3	CYL-4		
	337.87	346.25	349.09	342.01		
EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1143.1	-454.00	738.42	981.48	1106.4	1107.0
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.643		
	187.96	204.61	72.339			
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.317			
	134.02	2292.6				
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2		
	79.086	78.262	81.152	75.677		
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW		
	89.713	1.0408	55.197	1429.5		
CELL TEMP. = 84.331	HEATER TEMP. = 92.347	COOLER TEMP. = 79.246				

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NASA-LEWIS PRELIMINARY DATA 04/14/76 CADDEII REC 04/14/76 12:07:32.925 FAC SEX15 PGM C003 RDG 3394  
 LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=30% MODE = 3.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.240 RATED HP. = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	79.128	29.241	211.31	938.09	6.4186	14.833	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	82.161	5.4716	44.592	70.458	69.142	6.0810	
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	81.641	2.8799	3.8544	9732.6	32.738	47.371	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	32.738	0.65006	47.895	1.0998	154.07		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.073705	0.073204	1.1001	2695.2	2696.4	282.29	144.87
WET CORRECTION FACTOR = 0.83751				EXHAUST MOLE. WT. = 28.198		EXHAUST DENSITY = 0.073012	
				EXHAUST FLOW RATE = 13883.			
MEASURED CONC.	PART PER MILLION WET			PER CENT			
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	1250.9	726.13	4.5036	12.873	0.10861		
CORRECTED CONC. TO WET BASIS				10.781	0.090962		
	HC	NOX	CO				
EMISSION RATE	0.62347	1.1996	38.017				
EMISSION MASS/MODE	0.0031174	0.305982	0.19008				
EMISSION MASS/RATED HP	1.9484E-05	3.7489E-05	0.0011880				
MODE EMIS./STD. CYCLE %	1.0254	2.4993	2.8286				
CAL. FUEL AIR RATIO = 0.076020				MEAS. FUEL AIR RATIO = 0.073705		DIFF MEAS. & CAL. F/A PERCENT = 3.1405	
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	436.69	446.43	438.39	449.16			
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	1380.1	-454.00	895.05	1305.9	1381.9	1376.9	
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.252			
	188.79	215.20	73.483				
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.418				
	275.65	2637.3					
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2			
	78.872	79.128	-46.564	75.595			
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW			
	91.247	2.9940	54.833	2370.5			
CELL TEMP. = 86.523	HEATER TEMP = 90.834		COOLER TEMP = 80.036				

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NASA-LEWIS PRELIMINARY DATA 04/14/76 CADDEII REC 04/14/76 12:10:40.929 FAC SEX15 PGM C003 RDG 3395

LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=30% MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.240 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	79.587	29.260	180.59	793.66	5.4148	14.678

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	82.979	5.4824	44.570	60.425	57.777	6.0597

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	81.949	2.9123	3.8577	9794.0	31.821	47.016

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	31.821	61.816	47.758	1.0967	124.34

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.072798	0.072305	1.0865	2433.1	2433.5	259.11	120.04

WET CORRECTION FACTOR = 0.83946 EXHAUST MOLE. WT. = 28.275 EXHAUST DENSITY = 0.073211 EXHAUST FLOW RATE = 11703.

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1183.0	1496.0	4.2785	12.858	0.28003
CORRECTED CONC. TO WET BASIS			3.5916	10.794	0.23507

	HC	NOX	CO
EMISSION RATE	0.49706	2.0836	30.518
EMISSION MASS/MODE	0.041422	0.17363	2.5431
EMISSION MASS/RATED HP	0.00025889	0.0010852	0.015895
MODE EMISS./STD. CYCLE %	13.626	72.348	37.844

CAL. FUEL AIR RATIO = 0.075054 MEAS. FUEL AIR RATIO = 0.072798 DIFF MEAS. & CAL. F/A PERCENT = 3.0989

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	400.71	416.96	425.11	423.05

FXT GAS TEMP DEG.F	FXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1210.9	-454.00	792.45	1241.7	1335.1	1333.0

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 27.301
	188.49	307.32	72.763	

DYNO/COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.336
	251.17	2373.1	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	79.349	79.587	-38.535	75.388

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	92.065	0.089409	55.335	318.03

CELL TEMP. = 86.733 HEATER TEMP = 91.062 COOLER TEMP = 80.214

NASA-LEWIS PRELIMINARY DATA 04/14/76 CADDEII REC 04/14/76 12:14:27.487 FAC SEX15 PGM C003 RDG 3396  
 LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=30% MODE = 5.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PPESSURE = 29.240 RATED HP. = 160.00 HC RATIO= 2.1250  

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS. TOTAL
	80.416	29.241	107.35	465.30	3.1594	14.482
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	85.445	5.5992	44.506	37.978	36.574	6.1167
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	82.293	2.9264	3.7573	9820.6	30.413	46.536
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP	
	30.413	62.172	47.529	1.0914	67.643	
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE
	0.078602	0.078072	1.1732	2351.7	2352.6	145.21
						BHP
						65.019
WET CORRECTION FACTOR = 0.85270			EXHAUST MOLE. WT. = 27.793		EXHAUST DENSITY = 0.071963	
			EXHAUST FLOW RATE = 7018.0			
MEASURED CONC.	PART PER MILLION WET		PER CENT			
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	1606.4	552.21	5.2444	12.458	0.15384	
CORRECTED CONC. TO WET BASIS			4.4719	10.623	0.13118	
EMISSION RATE	HC	NOX	CO			
	0.40472	0.46118	22.785			
EMISSION MASS/MODE	0.040471	0.046118	2.2785			
EMISSION MASS/RATED HP	0.00025295	0.00028824	0.014240			
MODE EMISS./STD. CYCLE %	13.313	19.216	33.906			
CAL. FUEL AIR RATIO = 0.077593			MEAS. FUEL AIR RATIO = 0.078602		DIFF MEAS. & CAL. F/A PERCENT = -1.2837	
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4		
	352.29	357.50	362.42	359.69		
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	960.35	-454.00	968.46	1039.7	1164.1	1165.6
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.717		
	188.11	245.40	72.151			
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.309			
	138.96	2301.7				
INDUCTION AIR	IAIRT1	IAIRT2	IAIRT1	IAIRT2		
	80.240	80.416	-100.03	75.659		
ORIFICE AIR	TEMP	DFLTAP	ORFP	FLOW		
	92.891	0.078408	55.082	286.33		
CELL TEMP. = 87.127		HEATER TEMP = 91.359		COOLER TEMP = 80.276		

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NASA-LEWIS PRELIMINARY DATA 04/14/76 CADDELI REC 04/14/76 12:18:55.870 FAC SEX15 PGM C003 RDG 3397

LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=30% MCDE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.240 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	80.637	29.235	212.15	942.86	6.4221	14.846

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	84.244	5.4824	44.537	72.564	70.441	6.0426

COOLING AIR	TEMP	UREL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	83.128	2.9314	3.7869	9830.0	31.056	47.281

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	31.056	18.924	47.689	1.0951	155.85

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.074726	0.074220	1.1153	2697.9	2698.8	284.78	146.29

WET CORRECTION FACTOR = 0.84256 EXHAUST MOLE. WT. = 28.112 EXHAUST DENSITY = 0.072790 EXHAUST FLOW RATE = 14006.

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	1262.1	822.52	4.4970	12.892	0.11931
CORRECTED CONC. TO WET BASIS			3.7890	10.862	0.10053

	HC	NOX	CO
EMISSION RATE	0.63464	1.3709	38.529
EMISSION MASS/MODE	0.0031732	0.0068547	0.19265
EMISSION MASS/RATED HP	1.9832E-05	4.2842E-05	0.0012040
MCDE EMISS./STD. CYCLE %	1.0438	2.8561	2.8668

CAL. FUEL AIR RATIO = 0.075964 MEAS. FUEL AIR RATIO = 0.074726 DIFF MEAS. & CAL. F/A PERCENT = 1.6572

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	426.54	442.59	433.49	436.95

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1309.8	-454.00	1108.3	1371.8	1372.2	1367.5

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.247
	188.39	205.22	74.047	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.393
	277.21	2617.4	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	80.364	80.637	-19.978	75.611

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	93.778	1.9939	55.068	1952.2

CELL TEMP. = 88.290 HEATER TEMP = 91.656 COOLER TEMP = 79.459

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NASA-LEWIS		PRELIMINARY DATA		04/14/76		CADDILL		REC 04/14/76 12:22:13.604		FAC SEX15		PGM C003		RDG 3398	
LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=30%								MODE = 4.0000		NO. SCANS = 5					
ENGINE TIMING = 25.300				DEG.		BAROMETRIC PRESSURE = 29.240				RATED HP. = 160.00		HC RATIO = 2.1250			
COMP. AIR		TEMP		PRESS		CFM		DRY-FLOW		VAPOR FLOW		PRESS TOTAL			
		78.015		29.252		180.81		795.85		5.4257		14.699			
COMP. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		82.029		5.4923		44.595		61.281		58.932		6.0696			
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		80.434		2.9015		3.8688		9773.6		33.534		47.036			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		33.534		69.869		47.723		1.0959		123.62					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.074049		0.073548		1.1052		2432.3		2432.7		258.13		119.54	
WET CORRECTION FACTOR = 0.84498				EXHAUST MOLE. WT. = 28.169				EXHAUST DENSITY = 0.072937				EXHAUST FLOW RATE = 11793.			
MEASURED CONC.		PART PER MILLION WET				PER CENT									
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		1181.7		1497.3		4.3035		12.938		0.30255					
CORRECTED CONC. TO WET BASIS						3.6364		10.933		0.25565					
		HC		NOX		CO									
EMISSION RATE		0.50034		2.1015		31.136									
EMISSION MASS/MODE		0.041695		0.17512		2.5946									
EMISSION MASS/RATED HP		0.00026059		0.0010945		0.016216									
MODE EMIS./STD. CYCLE %		13.715		72.968		38.611									
CAL. FUEL AIR RATIO = 0.074977				MEAS. FUEL AIR RATIO = 0.074049				DIFF MEAS. & CAL. F/A PERCENT = 1.2528							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		397.21		417.09		422.05		426.18							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		1531.7		-454.00		1166.2		1376.6		1331.0		1329.0			
ENGINE OIL		EQILT		SOILT		OILP		MANIFOLD PRESSURE = 27.420							
		187.32		190.44		72.955									
DYNO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.348									
		255.84		2364.9											
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
		77.732		78.015		-31.446		75.362							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		91.404		1.0372		55.064		1424.9							
CELL TEMP. = 85.288				HEATER TEMP = 91.794				COOLER TEMP = 79.716							

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NASA-LEWIS PRELIMINARY DATA 04/14/76 CADDEIT REC 04/14/76 12:27:11.722 FAC SEX15 PGM C003 RDG 3399

LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=30% MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.240 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	79.084	29.236	107.43	465.16	3.1735	14.471

COMB. FUFL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	84.797	5.6082	44.523	38.141	36.529	6.0855

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	80.937	2.8517	3.8215	9678.9	31.896	46.641

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	31.896	58.714	47.757	1.0967 66.631

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.078530	0.077998	1.1721	2351.6	2352.5	143.25	64.139

WET CORPECTION FACTOR = 0.85368 EXHAUST MJLF. WT. = 27.799 EXHAUST DENSITY = 0.071978 EXHAUST FLOW RATE = 7014.1

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	1280.0	545.97	5.2034	12.494	0.17308
CORRECTED CONC. TO WET BASIS			4.4420	10.666	0.14775

	HC	NOX	CO
EMISSION RATE	0.32232	0.45571	22.620
EMISSION MASS/MODE	0.032232	0.045571	2.2620
EMISSION MASS/RATED HP	0.00020145	0.00028482	0.014137
MODE FMIS./STD. CYCLE %	10.603	18.988	33.660

CAL.FUEL AIR RATIO = 0.077267 MEAS. FUEL AIR RATIO = 0.078530 DIFF MEAS.& CAL. F/A PERCENT = -1.6081

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	345.41	351.79	353.40	353.95

FXT GAS TEMP DEG.F	FXT-1	FXT-2	FXT-3	FXT-4	SFXT-1	SEXT-2
	1314.9	-454.00	1093.9	1072.3	1147.4	1148.5

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.639
	188.04	234.80	72.575	

DYND COND.	TORQUE	RPM	CYL BACK PRESSURE = 29.299
	147.72	2287.5	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	78.863	79.084	-83.186	75.776

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	92.318	0.050505	55.078	198.53

CELL TEMP. = 86.050 HEATER TEMP = 92.002 COOLER TEMP = 80.649

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NASA-LEWIS PRELIMINARY DATA 04/14/76 CADDEII REC 04/14/76 12:39:17.470 FAC SEX15 PGM C003 RDG 3400  
 LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=30% MODE = 3.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.240 RATED HP. = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS. TOTAL	
	80.108	29.231	211.54	940.21	6.1139	14.835	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	85.209	5.4998	44.512	58.122	65.931	6.0399	
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	82.697	2.9967	3.8887	9952.2	30.151	46.040	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	30.151	-7.0707	45.518	1.0453	154.27		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.070124	0.069671	1.0466	2695.4	2697.5	282.40	144.93
WET CORRECTION FACTOR = 0.83861				EXHAUST MOLE. WT. = 28.506		EXHAUST DENSITY = 0.073808	
				EXHAUST FLOW RATE = 13714.			
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	1098.7	1347.4	2.8846	13.716	0.17018		
CORRECTED CONC. TO WET BASIS			2.4190	11.503	0.14271		
EMISSION RATE	HC	NOX	CO				
	0.54096	2.1991	24.086				
EMISSION MASS/MODE	0.0027048	0.310995	0.12043				
EMISSION MASS/RATED HP	1.6905E-05	6.8722E-05	0.00075268				
MODE EMIS./STD. CYCLE %	0.88974	4.5814	1.7921				
CAL. FUEL AIR RATIO = 0.072508				MEAS. FUEL AIR RATIO = 0.070124		DIFF MEAS. & CAL. F/A PERCENT = 3.3992	
CYL TEMP. DEG. F	CYL-1	CYL-2	CYL-3	CYL-4			
	435.11	442.81	439.40	440.87			
EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	1415.0	-95.939	1259.0	1345.7	1406.4	1400.9	
ENGINE OIL	EQILT	SOILT	OILP	MANIFOLD PRESSURE = 28.323			
	187.72	197.45	73.919				
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.362				
	280.34	2635.6					
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2			
	79.861	80.108	-2.2070	75.320			
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW			
	93.986	0.083208	55.171	299.97			
CELL TEMP. =	88.788	HEATER TEMP =	92.126	COOLER TEMP. =	78.509		

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NASA-LEWIS PRELIMINARY DATA 04/14/76 CADDEII REC 04/14/76 12:41:01.178 FAC SEX15 PGM C003 RDG 3401  
 LEANOUT 25 BTDC TO CI APP 90 DEG. HUM=30% MODE = 4.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.240 RATED HP. = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS. TOTAL
	80.769	29.220	186.50	821.21	5.3826	14.699
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	85.665	5.5127	44.501	59.704	57.891	6.0750
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	82.970	3.0167	3.9311	9989.2	29.469	46.006
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP	
	29.469	56.755	45.881	1.0536	123.80	
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE
	0.070494	0.070035	1.0522	2431.9	2432.0	257.90
						BHP
						119.42
WET CORRECTION FACTOR = 0.84336		EXHAUST MOLE. WT. = 28.473		EXHAUST DENSITY = 0.073724		EXHAUST FLOW RATE = 11997.
MEASURED CONC.	PART PER MILLION WET		PER CENT			
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	863.58	1649.7	3.5028	13.056	0.60774	
CORRECTED CONC. TO WET BASIS			2.9541	11.011	0.51254	
EMISSION RATE	HC	NOX	CO			
	0.37194	2.3552	25.730			
EMISSION MASS/MODE	0.030995	0.19626	2.1442			
EMISSION MASS/RATED HP	0.00019372	0.0012266	0.013401			
MODE EMIS./STD. CYCLE %	10.126	81.776	31.907			
CAL. FUEL AIR RATIO = 0.072393		MEAS. FUEL AIR RATIO = 0.070494		DIFF MEAS. & CAL. F/A PERCENT = 2.6933		
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4		
	409.23	426.53	412.90	417.06		
EXT GAS TEMP DEG.F	FXT-1	FXT-2	FXT-3	FXT-4	SEXT-1	SEXT-2
	1508.6	1454.00	1180.6	1239.3	1361.7	1358.8
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 27.762		
	186.45	285.23	72.675			
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.323			
	278.06	2373.8				
INDUCTION AIR	IAIPT1	IAIPT2	TAIPT1	TAIPT2		
	80.505	80.769	-61.937	75.391		
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW		
	94.298	2.0506	54.768	1977.3		
CELL TEMP. = 97.381	HEATER TEMP = 92.174		COOLER TEMP = 80.258			

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NASA-LEWIS PRELIMINARY DATA 04/14/76 CADDELI REC 04/14/76 12:44:02.964 FAC SEX15 PGM C003 RDG 3402  
 LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=30% MODE = 5.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.240 RATED HP. = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	78.386	29.238	108.66	471.14	3.0752	14.483
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	84.841	5.6277	44.522	36.415	34.617	6.1548
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	80.337	2.9505	3.8644	9865.9	31.263	45.505
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP	
	31.263	59.214	45.690	1.0492	68.063	
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE
	0.073476	0.072999	1.0967	2352.8	2352.7	146.49
						BHP
						65.624
WET CORRECTION FACTOR = 0.85230			EXHAUST MOLE. WT. = 28.218		EXHAUST DENSITY = 0.073062	
					EXHAUST FLOW RATE = 6954.4	
MEASURED CONC.	PART PER MILLION WET		PER CENT			
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	1282.8	890.19	3.2626	13.433	0.27343	
CORRECTED CONC. TO WET BASIS			2.7807	11.449	0.23304	
EMISSION RATE	HC	NOX	CO			
	0.32073	0.73775	14.060			
EMISSION MASS/MODE	0.032073	0.073775	1.4060			
EMISSION MASS/RATED HP	0.00020046	0.00046109	0.0087873			
MODE EMISS./STD. CYCLE %	10.550	30.740	20.922			
CAL. FUEL AIR RATIO = 0.073053			MEAS. FUEL AIR RATIO = 0.073476		DIFF. MEAS. & CAL. F/A PERCENT = -0.57499	
CYL TEMP. DEG. F	CYL-1	CYL-2	CYL-3	CYL-4		
	360.61	362.51	366.36	369.04		
EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1159.2	-454.00	1212.9	1138.8	1213.6	1215.1
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.948		
	187.59	237.79	72.131			
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.259			
	138.84	2305.7				
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2		
	78.148	78.386	-102.39	75.712		
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW		
	91.970	0.094509	55.167	332.11		
CELL TEMP. = 85.761	HEATER TEMP = 92.264		COOLER TEMP = 80.160			

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NASA-LEWIS PRELIMINARY DATA 04/14/76 CADDELI REC 04/14/76 12:48:25.742 FAC SEX15 PGM C003 RDG 3403  
 LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=30% MCDE = 3.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP = 160.00 HC RATIO = 2.1250  
 COMB. AIR TEMP PRESS CFM DRY FLOW VAPOR FLOW PRESS TOTAL  
 78.422 29.247 211.70 940.51 6.1770 14.835  
 COMB. FUEL TEMP PRESS DENSITY TURBO FLOW FLOW TRON FPIP  
 83.453 5.5010 44.558 66.523 66.331 6.0795  
 COOLING AIR TEMP UDEL-HOOD DEL-HOOD FLOW REL-HUM DEW-POINT  
 80.866 2.9976 3.9114 9953.8 32.181 46.301  
 REL-HUM 1 2 HUMIDITY % H2O VAPOR CORRECTED HP  
 32.181 27.765 45.974 1.0557 153.09  
 ENG. COND. F/A DRY F/A WET EQU. RATIO RPM-1 RPM-2 TORQUE BHP  
 0.070526 0.070066 1.0526 2695.6 2696.4 280.87 144.16  
 WET CORRECTION FACTOR = 0.84168 EXHAUST MOLE. WT. = 28.471 EXHAUST DENSITY = 0.073717 EXHAUST FLOW RATE = 13741.  
 PART PER MILLION WET PER CENT  
 MEASURED CONC. HC PPM NOX PPM CO DRY CO2 DRY O2 DRY  
 1084.7 1376.3 2.8186 13.726 0.18594  
 CORRECTED CONC. TO WET BASIS 2.3724 11.553 0.15650  
 HC NOX CO  
 EMISSION RATE 0.53513 2.2507 23.668  
 EMISSION MASS/MODE 0.0026756 0.011254 0.11834  
 EMISSION MASS/RATED HP 1.6723E-05 7.0335E-05 0.00073963  
 MODE EMISS./STD. CYCLE % 0.88014 4.5890 1.7610  
 CAL. FUEL AIR RATIO = 0.072330 MEAS. FUEL AIR RATIO = 0.070526 DIFF MEAS. & CAL. F/A PERCENT = 2.5580  
 CYL TEMP DEG.F CYL-1 CYL-2 CYL-3 CYL-4  
 427.07 441.77 434.84 433.74  
 EXT GAS TEMP DEG.F EXT-1 EXT-2 EXT-3 EXT-4 SEXT-1 SEXT-2  
 1097.1 64.861 1319.5 1441.3 1411.4 1406.1  
 ENGINE OIL EOILT SOILT OILP MANIFOLD PRESSURE = 28.376  
 188.80 245.93 74.035  
 DYNO COND. TORQUE RPM CYL. BACK PRESSURE = 29.339  
 276.53 2638.8  
 INDUCTION AIR IAIRT1 IAIRT2 TAIRT1 TAIRT2  
 78.156 78.422 -22.513 75.501  
 ORIFICE AIR TEMP DELTAP ORFP FLOW  
 92.396 0.99990 55.061 1398.2  
 CELL TEMP. = 86.996 HEATER TEMP. = 92.291 COOLER TEMP. = 80.294

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NASA-Lewis PRELIMINARY DATA 04/14/76 CADDELL REC 04/14/76 12:53:11.766 FAC SEX15 PGM C003 RDG 3404

LEANOUT 25 BTDC TO C1 APP 80 DEG. HUM=30% MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATE HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	79.261	29.239	180.57	795.32	5.2311	14.704

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	84.498	5.5163	44.531	57.477	55.220	6.0999

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	81.404	3.0443	3.8154	10040.	31.076	46.105

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	31.076	57.106	46.041	1.0573 121.70

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.069432	0.068978	1.0363	2429.4	2431.0	254.18	117.58

WET CORRECTION FACTOR = 0.84017 EXHAUST MOLE. WT. = 28.497 EXHAUST DENSITY = 0.073785 EXHAUST FLOW RATE = 11598.

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM NOX PPM CO DRY	CO2 DRY O2 DRY
	841.98 1609.7	3.2682 13.248 0.62456
CORRECTED CONC. TO WET BASIS		2.7458 11.131 0.52474

C12

	HC	NOX	CO
EMISSION RATE	0.35058	2.2216	23.121
EMISSION MASS/MODE	0.029215	0.18514	1.9267
EMISSION MASS/RATED HP	0.00018259	0.0011571	0.012042
MODE EMIS./STD. CYCLE %	9.6102	77.140	28.672

CAL. FUEL AIR RATIO = 0.071840 MEAS. FUEL AIR RATIO = 0.069432 DIFF MEAS. & CAL. F/A PERCENT = 3.4690

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	400.98	422.11	407.10	402.58

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1303.7	-454.00	1154.0	1365.0	1358.5	1356.6

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 27.418
	187.84	164.87	72.847	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.379
	278.63	2342.3	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	78.969	79.261	-41.836	75.396

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	93.204	3.0104	55.025	2372.6

CELL TEMP. = 87.293 HEATER TEMP. = 92.340 COOLER TEMP = 80.933

NASA-LEWIS PRELIMINARY DATA 04/14/76 CADDELL REC 04/14/76 12:56:00.431 FAC SEX15 PGM C003 RDG 3405  
 LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=30% MODE = 5.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP = 160.00 HC RATIO = 2.1250  
 COMB. AIR TEMP. PRESS CFM DRY FLOW VAPOR FLOW PRESS. TOTAL  
 80.046 29.214 108.36 469.37 3.0884 14.472  
 COMB. FUEL TEMP PRESS DENSITY TURBO FLOW FLOW TRON FPIP  
 86.585 5.6493 44.477 36.351 34.341 6.1176  
 COOLING AIR TEMP UDEL-HOOD DEL-HOOD FLOW REL-HUM DEW-POINT  
 81.967 2.9317 3.7999 9830.5 29.820 45.695  
 REL-HUM 1 2 HUMIDITY % H2O VAPOR CORRECTED HP  
 29.820 55.319 46.059 1.0577 67.840  
 ENG. COND. F/A DRY E/A WET EQU. RATIO RPM-1 RPM-2 TORQUE BHP  
 0.073164 0.072686 1.0920 2353.9 2355.5 145.63 65.269  
 WET CORRECTION FACTOR = 0.84823 EXHAUST MOLE. WT. = 28.244 EXHAUST DENSITY = 0.073131 EXHAUST FLOW RATE = 6930.1  
 MEASURED CONC. PART PER MILLION WET PER CENT  
 HC PPM NOX PPM CO DRY CO2 DRY O2 DRY  
 1332.9 875.69 3.3710 13.438 0.21304  
 CORRECTED CONC. TO WET BASIS 2.8594 11.399 0.18071  
 EMISSION RATE HC NOX CO  
 0.33162 0.72216 14.386  
 EMISSION MASS/MODE 0.033162 0.072216 1.4386  
 EMISSION MASS/RATED HP 0.00020726 0.00045135 0.0089914  
 MODE EMIS./STD. CYCLE % 10.909 30.090 21.408  
 CAL. FUEL AIR RATIO = 0.073457 MEAS. FUEL AIR RATIO = 0.073164 DIFF MEAS. & CAL. F/A PERCENT = 0.40041  
 CYL TEMP DEG.F CYL-1 CYL-2 CYL-3 CYL-4  
 361.42 364.85 367.69 368.74  
 EXT GAS TEMP DEG.F EXT-1 EXT-2 EXT-3 EXT-4 SEXT-1 SEXT-2  
 1454.8 -454.00 1284.0 1137.6 1215.9 1218.1  
 ENGINE OIL EOILT SOILT OILP MANIFOLD PRESSURE = 18.892  
 186.87 217.58 71.995  
 DYNO COND. TORQUE RPM CYL. BACK PRESSURE = 29.274  
 152.84 2302.7  
 INDUCTION AIR IAIRT1 IAIRT2 TAIRT1 TAIRT2  
 79.817 80.046 -73.235 75.814  
 ORIFICE AIR TEMP DELTAP ORFP FLOW  
 93.673 1.9954 55.027 1953.1  
 CELL TEMP. = 87.844 HEATER TEMP = 92.409 COOLER TEMP = 80.915

613

NASA-LEWIS PRELIMINARY DATA 04/15/76 CADDEII REC 04/15/76 17:57:47.239 FAC SEX15 PGM C003 RDG 3406

LEANOUT 25 BTDC I & T 80 DEG HUM = 30 % 3/4 T OPEN MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.100 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	80.681	29.098	14.268	61.331	0.40488	14.294

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	96.127	5.8098	44.232	7.8026	6.1506	6.2127

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	84.990	-0.051477	0.80536	0.00000	28.943	45.455

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	28.943	41.240	46.211	1.0611	0.64020

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10028	0.099627	1.4968	617.22	624.18	5.2839	0.62097

WET CORRECTION FACTOR = 0.87839 EXHAUST MOLE. WT. = 26.207 EXHAUST DENSITY = 0.067856 EXHAUST FLOW RATE = 1000.5

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY
	39962.	7.7378	9.9574	6.5183
CORRECTED CONC. TO WET BASIS			8.7465	5.7256
				3.1469

EMISSION RATE	HC	NOX	CO
	1.4353	0.00092121	6.3528
EMISSION MASS/MODE	0.023922	1.5353E-05	0.10588
EMISSION MASS/RATED HP	0.00014951	9.5959E-08	0.00066175
MODE EMIS./STD. CYCLE %	7.8691	0.0063973	1.5756

CAL. FUEL AIR RATIO = 0.10178 MEAS. FUEL AIR RATIO = 0.10028 DIFF MEAS. & CAL. F/A PERCENT = 1.4862

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	215.14	233.00	204.61	205.46

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	-31.902	-345.58	-454.00	469.54	611.64	607.19

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 12.071
	162.59	203.56	46.885	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.095
	4.3564	612.78	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	80.117	80.681	-50.178	73.281

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	91.587	2.0272	53.056	1971.4

CELL TEMP. = 92.344 HEATER TEMP = 93.196 COOLER TEMP = 67.623



NASA-LEWIS		PRELIMINARY DATA		04/15/76		CADDEII		REC 04/15/76 18:00:21.416		FAC SEX15		PGM C003		RDG 3407	
LEANOUT 25 BTDC I & T 80 DEG HUM = 30 % 3/4 T OPEN MODE = 2.0000 NO. SCANS = 5															
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 29.100				RATED HP. = 160.00		HC RATIO= 2.1250			
COMB. AIR		TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL								
		79.746	29.100	21.757	93.544	0.61708	14.296								
COMB. FUEL		TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP								
		94.758	5.7678	44.267	10.819	9.1929	6.1977								
COOLING AIR		TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT								
		84.305	-0.057289	0.80315	0.00000	29.823	45.440								
REL-HUM		1	2	HUMIDITY	% H2O VAPOR		CORRECTED HP								
		29.823	63.850	46.177	1.0604		1.6807								
ENG. COND.		F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP							
		0.098274	0.097630	1.4668	1203.8	1203.7	7.1174	1.6314							
WET CORRECTION FACTOR = 0.85914				EXHAUST MOLE. WT. = 26.340				EXHAUST DENSITY = 0.068200				EXHAUST FLOW RATE = 1515.4			
MEASURED CONC.		PART PER MILLION WET			PER CENT		615								
		HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY									
		12824	16.239	11.544	7.9950	0.49347									
CORRECTED CONC. TO WET BASIS					9.9180	6.8688	0.42396								
EMISSION RATE		HC	NOX	CO											
		0.69770	0.0029284	10.912											
EMISSION MASS/MODE		0.12791	0.00053688	2.0005											
EMISSION MASS/RATED HP		0.00079945	3.3555E-06	0.012503											
MODE EMIS./STD. CYCLE %		42.076	0.22370	29.770											
CAL. FUEL AIR RATIO = 0.099743				MEAS. FUEL AIR RATIO = 0.098274				DIFF MEAS. & CAL. F/A PERCENT = 1.4951							
CYL TEMP DEG.F		CYL-1	CYL-2	CYL-3	CYL-4										
		237.64	250.67	232.17	227.79										
EXT GAS TEMP DEG.F		EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2								
		1191.0	-454.00	-454.00	250.88	552.45	546.39								
ENGINE OIL		EOILT	SOILT	OILP	MANIFOLD PRESSURE = 8.5789										
		158.84	207.20	56.838											
DYNO COND.		TORQUE	RPM	CYL. BACK PRESSURE = 29.214											
		11.363	1207.8												
INDUCTION AIR		IAIRT1	IAIRT2	TAIRT1	TAIRT2										
		79.296	79.746	-90.754	73.248										
ORIFICE AIR		TEMP	DELTAP	ORFP	FLOW										
		91.439	0.075007	53.091	276.62										
CELL TEMP. = 92.118				HEATER TEMP = 97.360				COOLER TEMP = 69.436							

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NASA-LEWIS		PRELIMINARY DATA		04/15/76	CADDEII	REC 04/15/76 18:00:44.070		FAC SEX15	PGM C003	RDG 3408	
LEANOUT 25 BTDC. I & T 80 DEG HUM = 30 % 3/4 T OPEN MODE = 6.0000 NO. SCANS = 5											
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.100			RATED HP. = 160.00		HC RATIO = 2.1250		
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL					
	78.934	29.104	22.069	94.873	0.62652	14.298					
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP					
	93.838	5.7630	44.290	10.823	9.1929	6.1953					
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT					
	83.532	-0.053691	0.73285	0.00000	30.664	45.470					
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP						
	30.664	46.553	46.226	1.0615	1.5462						
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP				
	0.096897	0.096262	1.4462	1204.2	1204.1	6.5506	1.5020				
WET CORRECTION FACTOR = 0.85534		EXHAUST MOLE. WT. = 26.432		EXHAUST DENSITY = 0.068440		EXHAUST FLOW RATE = 1529.7					
MEASURED CONC.	PART PER MILLION WET			PER CENT							
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY						
	12300.	16.434	11.493	8.0506	0.47021						
CORRECTED CONC.	TO WET BASIS			9.8304	6.8860	0.40219					
	HC	NOX	CO								
EMISSION RATE	0.67548	0.0029915	10.917								
EMISSION MASS/MODE	0.033774	0.00014957	0.54586								
EMISSION MASS/RATED HP	0.00021109	9.34E-07	0.0034116								
MODE EMIS./STD. CYCLE %	11.110	0.062322	8.1229								
CAL. FUEL AIR RATIO = 0.099354		MEAS. FUEL AIR RATIO = 0.096897		DIFF MEAS. & CAL. F/A PERCENT = 2.5356							
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4							
	240.17	252.87	235.55	232.11							
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2					
	1600.5	-454.00	-454.00	-399.90	549.62	543.08					
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 8.5822							
	158.49	-165.51	56.886								
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.219								
	1.3177	1204.4									
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2							
	78.536	78.934	-134.39	73.350							
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW							
	90.655	0.080608	53.117	293.34							
CELL TEMP. = 91.317		HEATER TEMP = 95.086		COOLER TEMP = 69.150							

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NASA-LEWIS PRELIMINARY DATA 04/15/76 CADDEII REC 04/15/76 18:05:43.587 FAC SEX15 PGM C003 RDG 3410

LEANOUT 25 BTDC I & T 80 DEG HUM = 30 % 3/4 T OPEN MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.100 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	77.909	29.099	14.113	60.689	0.40112	14.294

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	91.700	5.7978	44.345	7.8311	6.2796	6.2055

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	81.624	-0.050647	0.82114	0.00000	31.735	45.485

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	31.735	45.411	46.266	1.0624	0.72457

ENG. COND.	F/A DRY	F/A WET	EQ. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10347	0.10279	1.5444	621.00	621.30	5.9589	0.70459

WET CORRECTION FACTOR = 0.88590 EXHAUST MOLE. WT. = 26.003 EXHAUST DENSITY = 0.067327 EXHAUST FLOW RATE = 1000.6

MEASURED CONC.	PART PER MILLION WET	CO DRY	PER CENT	O2 DRY
	HC PPM	10.256	6.6703	3.0560
	NOX PPM	9.0859	5.9093	2.7427

CORRECTED CONC. TO WET BASIS	HC	NOX	CO
EMISSION RATE	1.3074	0.00077728	6.6006
EMISSION MASS/MODE	0.021790	1.2955E-05	0.11001
EMISSION MASS/RATED HP	0.00013619	8.0967E-08	0.00068756
MODE EMIS./STD. CYCLE %	7.1679	0.0053978	1.6370

CAL. FUEL AIR RATIO = 0.10197 MEAS. FUEL AIR RATIO = 0.10347 DIFF MEAS. & CAL. F/A PERCENT = -1.4535

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	214.79	232.73	206.39	209.53

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1526.8	-454.00	-454.00	-139.80	473.33	469.61

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	150.46	232.28	47.761	12.159

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	11.298	620.52	29.164

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	77.360	77.909	-79.046	73.024

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	89.251	2.0444	53.143	1983.5

CELL TEMP. = 89.783 HEATER TEMP = 91.746 COOLER TEMP = 68.025

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OF POOR QUALITY

NASA-LEWIS PRELIMINARY DATA 04/15/76 CADDEII REC 04/15/76 18:13:57.303 FAC SEX15 PGM C003 RDG 3411

LEANOUT 25 BTDC I & T 80 DEG HUM = 30 % 1 1/2 T OPEN MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.00C DEG. BAROMETRIC PRESSURE = 29.100 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	78.183	29.102	14.735	63.402	0.42039	14.292

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	91.021	5.7720	44.362	8.2918	6.6607	6.2016

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	83.550	-0.051754	0.79402	0.00000	31.545	45.565

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	31.545	42.530	46.414	1.0658	0.84396

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10505	0.10436	1.5580	604.80	607.20	7.1257	0.82057

WET CORRECTION FACTOR = 0.88422 EXHAUST MOLE. WT. = 25.904 EXHAUST DENSITY = 0.067071 EXHAUST FLOW RATE = 1050.9

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY
	43386.	4.7575	10.880	5.6548
CORRECTED CONC. TO WET BASIS			9.6199	5.0001
				3.3415

EMISSION RATE	HC	NOX	CO
	1.6368	0.00059494	7.3393
EMISSION MASS/MODE	0.027280	9.9156E-06	0.12232
EMISSION MASS/RATED HP	0.00017050	6.1973E-08	0.00076451
MODE EMIS./STD. CYCLE %	8.9737	0.0041315	1.8203

CAL. FUEL AIR RATIO = 0.10698 MEAS. FUEL AIR RATIO = 0.10505 DIFF MEAS. & CAL. F/A PERCENT = 1.8316

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	311.69	331.16	317.37	334.30

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1317.5	-454.00	-454.00	-145.28	648.84	648.45

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 13.329
	161.39	177.80	45.721	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.026
	7.2943	598.62	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	77.484	78.183	-59.662	72.646

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	90.175	2.0105	53.117	1966.2

CELL TEMP. = 90.359 HEATER TEMP = 90.793 COOLER TEMP = 66.667

NASA-LEWIS		PRELIMINARY DATA		04/15/76		CADDELL		REC 04/15/76 18:16:39.346		FAC SEX15		PGM C003		RDG 3412	
LEANOUT 25 BTDC I & T 80 DEG HUM = 30 % 1 1/2 T OPEN MODE = 2.0000 NO. SCANS = 5															
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 29.100				RATED HP. = 160.00		HC RATIO = 2.1250			
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		78.139		29.096		22.624		97.363		0.64794		14.300			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		91.717		5.7447		44.345		11.651		9.9340		6.1758			
COOLING AIR		TEMP		DEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		83.901		-0.053691		0.82889		0.00000		31.723		45.675			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		31.723		51.073		46.585		1.0697		1.6206					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.10203		0.10136		1.5228		1204.8		1205.7		6.8673		1.5754	
WET CORRECTION FACTOR = 0.86109				EXHAUST MOLE. WT. = 26.094				EXHAUST DENSITY = 0.067564				EXHAUST FLOW RATE = 1597.7			
MEASURED CONC.		PART PER MILLION WET				PER CENT									
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		15050.		9.8590		12.258		7.5460		0.42940					
CORRECTED CONC. TO WET BASIS						10.555		6.4978		0.36975					
EMISSION RATE		HC		NOX		CO									
		0.86324		0.0018744		12.243									
EMISSION MASS/MODE		0.15826		0.00034364		2.2445									
EMISSION MASS/RATED HP		0.00098913		2.1478E-06		0.014028									
MODE EMIS./STD. CYCLE %		52.059		0.14318		33.400									
CAL.FUEL AIR RATIO = 0.10374				MEAS. FUEL AIR RATIO = 0.10203				DIFF MEAS.& CAL. F/A PERCENT = 1.6755							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		277.11		293.81		281.86		288.95							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		1314.3		-454.00		-454.00		-227.97		584.90		582.82			
ENGINE OIL		EOILT		SOILT		OILP		MANIFOLD PRESSURE = 8.9723							
		157.61		340.35		57.146									
DYND COND.		TORQUE		RPM		CYL.BACK PRESSURE = 29.197									
		6.6535		1209.4											
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
		77.652		78.139		-80.443		72.814							
ORIFICE AIR		TEMP		DELTA P		ORFP		FLOW							
		90.463		2.9759		52.855		2365.3							
CELL TEMP. = 91.082				HEATER TEMP = 90.564				COOLER TEMP = 67.606							

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NASA-Lewis		PRELIMINARY DATA		04/15/76		CADDE11		REC 04/15/76 18:17:00.571		FAC SEX15		PGM C003		RDG 3413		
LEANOUT 25 BTDC I & T 80 DEG HUM = 30 % 1 1/2 T OPEN MODE = 6.0000 NO. SCANS = 5																
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 29.100				RATED HP. = 160.00		HC RATIO = 2.1250				
COMB. AIR		TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL									
		78.201	29.099	22.484	96.720	0.64424	14.295									
COMB. FUEL		TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP									
		91.752	5.7474	44.344	11.418	9.7570	6.1770									
COOLING AIR		TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT									
		83.901	-0.046772	0.80592	0.00000	31.676	45.690									
REL-HUM		1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP										
		31.676	32.799	46.626	1.0707	1.2434										
ENG. COND.		F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP								
		0.10088	0.10021	1.5057	1207.0	1207.4	5.2589	1.2086								
WET CORRECTION FACTOR = 0.85793				EXHAUST MOLE. WT. = 26.168				EXHAUST DENSITY = 0.067756				EXHAUST FLOW RATE = 1581.0				
MEASURED CONC.		PART PER MILLION WET			PER CENT											
		HC PPM	NOX PPM	CO DRY	CO2 DRY	CO2 DRY										
		14568.	9.5709	12.300	7.5573	0.44152										
CORRECTED CONC. TO WET BASIS					10.552	6.4837	0.37880									
		HC	NOX	CO												
EMISSION RATE		0.82686	0.0018006	12.112												
EMISSION MASS/MODE		0.041343	9.0032E-05	0.60559												
EMISSION MASS/RATED HP		0.00025839	5.5270E-07	0.0037850												
MODE EMIS./STD. CYCLE %		13.600	0.037513	9.0118												
CAL. FUEL AIR RATIO = 0.10347				MEAS. FUEL AIR RATIO = 0.10088				DIFF MEAS. & CAL. F/A PERCENT = 2.5674								
CYL TEMP DEG.F		CYL-1	CYL-2	CYL-3	CYL-4											
		275.89	291.99	280.60	287.39											
EXT GAS TEMP DEG.F		EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2									
		1534.0	-454.00	-454.00	-454.00	579.26	576.88									
ENGINE OIL		EOILT	SOILT	OILP	MANIFOLD PRESSURE = 8.8607											
		157.35	219.18	57.230												
DYNO COND.		TORQUE	RPM	CYL. BACK PPESSURE = 29.093												
		3.1971	1213.6													
INDUCTION AIR		IAIRT1	IAIRT2	TAIRT1	TAIRT2											
		77.705	78.201	-68.072	72.858											
ORIFICE AIR		TEMP	DEL TAP	ORFP	FLOW											
		90.489	1.0924	52.906	1462.9											
CELL TEMP. = 91.082				HEATER TEMP = 90.544				COOLER TEMP = 68.293								

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NASA-LEWIS		PRELIMINARY DATA		04/15/76		CADDEII		REC 04/15/76 18:20:23.340		FAC SEX15		PGM C003		RDG 34.4	
LEANOUT 25 BYDC I & T 80 DEG HUM = 30 % 1 1/2 T OPEN MODE = 7.0000 NO. SCANS = 5															
ENGINE TIMING = 25.00C				DEG.		BAROMETRIC PRESSURE = 29.100				RATED HP. = 160.00		HC RATIO = 2.1250			
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		79.066		29.104		15.182		65.246		0.43466		14.288			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		92.570		5.7612		44.323		8.4374		6.8857		6.1815			
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		83.735		-0.065591		0.75416		0.00000		30.775		45.680			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		30.775		40.262		46.633		1.0708		0.29481					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.10553		0.10484		1.5751		605.58		607.98		2.4836		0.28637	
WET CORRECTION FACTOR = 0.89268				EXHAUST MOLE. WT. = 25.874				EXHAUST DENSITY = 0.066995				EXHAUST FLOW RATE = 1083.2			
MEASURED CONC.		PART PER MILLION WET				PER CENT									
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		41940.		4.0224		10.566		5.8725		3.8568					
CORRECTED CONC. TO WET BASIS						9.4322		5.2423		3.4429					
EMISSION RATE		HC		NOX		CO									
		1.6309		0.00051848		7.4173									
EMISSION MASS/MODE		0.027181		8.6413E-06		0.12362									
EMISSION MASS/RATED HP		0.00016988		5.4008E-08		0.00077263									
MODE EMIS./STD. CYCLE %		8.9412		0.0036005		1.8396									
CAL.FUEL AIR RATIO = 0.10425				MEAS. FUEL AIR RATIO = 0.10553				DIFF MEAS.& CAL. F/A PERCENT = -1.2167							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		247.37		263.03		249.06		258.47							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		1087.0		-454.00		-454.00		-252.61		516.70		515.17			
ENGINE OIL		EOILT		SOILT		OILP		MANIFOLD PRESSURE = 13.338							
		154.74		255.78		46.833									
DYNO COND.		TORQUE		RPM		CYL.BACK PRESSURE = 28.905									
		8.1512		597.12											
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
		78.448		79.066		-7.9568		73.087							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		90.847		1.0218		53.123		1415.1							
CELL TEMP. = 91.291				HEATER TEMP = 90.343				COOLER TEMP = 69.436							

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NASA-LEWIS PRELIMINARY DATA 04/15/76 CADDEII REC 04/15/76 19:13:51.699 FAC SEX15 PGM C003 RDG 3417

LEANOUT 25 BTDC I & T 80 DEG HUM = 60 % 1 1/2 T CLOS MODE = 2.0000 NO. SCANS = 4

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.100 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	78.629	29.094	19.589	83.351	1.1199	14.293

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	91.978	5.8247	44.338	3.9347	6.2331	6.1787

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	84.035	-0.045665	0.80536	0.00000	62.319	64.674

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	62.319	47.162	94.051	2.1597	1.6846

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.074782	0.073790	1.1161	1207.7	1207.4	7.0424	1.6194

WET CORRECTION FACTOR = 0.82718 EXHAUST MOLE. WT. = 28.108 EXHAUST DENSITY = 0.072777 EXHAUST FLOW RATE = 1246.3

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	2384.0	50.643	5.2973	11.984	0.20387	
CORRECTED CONC. TO WET BASIS			4.3818	9.9129	0.16864	

	HC	NOX	CO
EMISSION RATE	0.10667	0.0075109	3.9647
EMISSION MASS/MODE	0.019555	0.0013770	0.72687
EMISSION MASS/RATED HP	0.00012222	8.5062E-06	0.0045429
MODE EMIS./STD. CYCLE %	6.4327	0.57375	10.816

CAL. FUEL AIR RATIO = 0.078324 MEAS. FUEL AIR RATIO = 0.074782 DIFF MEAS. & CAL. F/A PERCENT = 4.7365

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	267.83	291.57	284.53	290.70

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1154.0	1054.7	-286.73	-160.18	588.18	586.67

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	152.64	148.61	56.261	7.9870

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	5.6166	1191.2	29.019

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	78.099	78.629	-112.73	72.904

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	94.021	0.029753	53.555	124.21

CELL TEMP. = 90.018 HEATER TEMP = 93.469 COOLER TEMP = 65.825



NASA-LEWIS	PRELIMINARY DATA	04/15/76	CADDEII	REC 04/15/76 19:19:38.186	FAC SEX15	PGM C003	RDG 3419
LEANOUT 25 BTDC I & T 80 DEG HUM = 60 % 1 1/2 T CLOS MODE = 7.0000 NO. SCANS = 5							
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.100		RATED HP. = 160.00		HC RATIO = 2.1250
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	76.865	29.099	11.767	50.128	0.67254	14.293	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	90.733	5.8575	44.370	3.9384	3.5013	6.1851	
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	80.619	-0.064208	0.81643	0.00000	65.962	64.632	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	65.962	58.284	93.915	2.1566	0.61600		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.069849	0.068924	1.0425	615.84	611.04	5.0588	0.59319
WET CORRECTION FACTOR = 0.85879		EXHAUST MOLE. WT. = 28.455		EXHAUST DENSITY = 0.073677		EXHAUST FLOW RATE = 737.02	
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	12459.	32.279	2.1962	11.901	2.7329		
CORRECTED CONC. TO WET BASIS			1.8861	10.220	2.3470		
	HC	NOX	CO				
EMISSION RATE	0.32966	0.0028311	1.0092				
EMISSION MASS/MODE	0.0054943	4.7184E-05	0.016820				
EMISSION MASS/RATED HP	3.4340E-05	2.9490E-07	0.00010513				
MODE EMIS./STD. CYCLE %	1.8073	0.019660	0.25030				
CAL. FUEL AIR RATIO = 0.069747		MEAS. FUEL AIR RATIO = 0.069849		DIFF MEAS. & CAL. F/A PERCENT = -0.14515			
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	227.84	256.65	244.11	254.11			
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	715.58	912.16	-345.27	-33.686	481.65	479.88	
ENGINE OIL	EOILT	SOILT	OTLP	MANIFOLD PRESSURE = 11.355			
	148.85	189.45	47.281				
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.155				
	3.6148	606.42					
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2			
	76.289	76.865	-65.909	72.250			
ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW			
	91.926	0.075908	53.540	279.18			
CELL TEMP. = 87.740	HEATER TEMP = 93.099		COOLER TEMP = 62.247				

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NASA-LEWIS		PRELIMINARY DATA		04/15/76	CADDEII	REC 04/15/76 19:19:59.147		FAC SEX15	PGM C003	RDG 3420	
LEANOUT 25 BTDC I & T 80 DEG HUM = 60 % 1 1/2 T CLOS MODE = 1.0000						NO. SCANS = 5					
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.100			RATED HP. = 160.00		HC RATIO = 2.1250			
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL					
	76.732	29.097	11.492	48.932	0.65718	14.291					
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP					
	90.559	5.8587	44.374	3.9354	3.4383	6.1869					
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT					
	80.319	-0.059503	0.82142	0.00000	66.311	64.657					
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP						
	66.311	39.790	94.014	2.1589	0.50492						
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP				
	0.070268	0.069337	1.0488	599.70	600.84	4.2588	0.48629				
WET CORRECTION FACTOR = 0.86354			EXHAUST MOLE. WT. = 28.493		EXHAUST DENSITY = 0.073775		EXHAUST FLOW RATE = 718.77				
MEASURED CONC.	PART PER MILLION WET		PER CENT		624						
	HC PPM	NOX PPM	CO DRY	CO2 DRY							O2 DRY
	12425.	31.729	2.1296	11.915							2.8321
CORRECTED CONC. TO WET BASIS			1.8390	10.289	2.4456						
		HC	NOX	CO							
EMISSION RATE		0.32062	0.0027139	0.95964							
EMISSION MASS/MODE		0.0053436	4.5232E-05	0.015994							
EMISSION MASS/RATED HP		3.3398E-05	2.8270E-07	9.9963E-05							
MODE EMIS./STD. CYCLE %		1.7578	0.018846	0.23801							
CAL. FUEL AIR RATIO = 0.069262		MEAS. FUEL AIR RATIO = 0.070268		DIFF MEAS. & CAL. F/A PERCENT = -1.4312							
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4							
	223.19	254.53	241.69	251.45							
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2					
	671.24	905.35	-390.89	-454.00	474.35	477.16					
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 11.707							
	148.49	165.75	47.165								
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.284								
	6.0198	595.74									
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2							
	76.129	76.732	14.117	72.418							
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW							
	91.735	2.0250	53.505	1970.1							
CELL TEMP. = 87.687		HEATER TEMP = 93.072		COOLER TEMP = 62.785							

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NASA-LEWIS PRELIMINARY DATA 04/15/76 CADDEII REC 04/15/76 19:23:41.375 FAC SEX15 PGM C003 RDG 3421

LEANOUT 25 BTDC I & T 80 DEG HUM = 60 % 1 1/2 T CLOS MODE = 6.0000 NO. SCANS = 3

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.100 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	77.826	29.104	19.116	80.884	1.1057	14.297

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	90.382	5.8136	44.379	3.9369	6.3706	6.1741

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	81.121	-0.072879	0.87870	0.00000	65.101	65.167

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	65.101	48.128	95.693	2.1974	2.0738

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.078763	0.077701	1.1756	1198.8	1199.1	8.7370	1.9943

WET CORRECTION FACTOR = 0.84083 EXHAUST MOLE. WT. = 27.780 EXHAUST DENSITY = 0.071929 EXHAUST FLOW RATE = 1228.4

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	O2 DRY
	2518.6	51.522	5.6355	11.828
CORRECTED CONC. TO WET BASIS			4.7385	0.18085
			9.9455	0.15207

	HC	NOX	CO
EMISSION RATE	0.11107	0.0075316	4.2260
EMISSION MASS/MODE	0.0055536	0.00037658	0.21130
EMISSION MASS/RATED HP	3.4710E-05	2.3536E-06	0.0013206
MODE EMIS./STD. CYCLE %	1.8268	0.15691	3.1443

CAL. FUEL AIR RATIO = 0.079170 MEAS. FUEL AIR RATIO = 0.078763 DIFF MEAS. & CAL. F/A PERCENT = 0.51755

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	252.64	272.24	259.78	263.82

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	918.27	1065.8	-454.00	294.91	449.38	448.94

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 7.9955
	144.76	253.72	57.992	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.042
	4.1164	1179.7	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	77.340	77.826	-39.239	75.833

ORIFICE AIR	TEMP	DELTAP	ORFP.	FLOW
	91.761	3.3258	53.532	2493.1

CELL TEMP. = 87.850 HEATER TEMP = 129.15 COOLER TEMP = 79.867

NASA-LEWIS		PRELIMINARY DATA		04/15/76	CADDEII	REC 04/15/76 19:32:25.733	FAC SEX15	PGM C003	RDG 3422
LEANOUT 25 BTDC I & T 80 DEG HUM = 60 % 3/4 T CLOSED MODE = 1.0000 NO. SCANS = 5									
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.100		RATED HP. = 160.00		HC RATIO = 2.1250	
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL			
	80.267	29.102	10.313	43.590	0.58127	14.290			
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP			
	90.262	5.8374	44.382	3.9394	3.8974	6.1851			
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT			
	84.735	-0.073617	0.81256	0.00000	58.617	64.457			
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP				
	58.617	61.976	93.346	2.1435	0.71815				
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP		
	0.089411	0.088234	1.3345	593.58	594.30	6.1006	0.68949		
WET CORRECTION FACTOR = 0.85627		EXHAUST MOLE. WT. = 26.960		EXHAUST DENSITY = 0.069805		EXHAUST FLOW RATE = 688.60			
MEASURED CONC.		PART PER MILLION WET		PER CENT					
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY				
	20497.	11.111	8.0156	9.0662	1.9675				
CORRECTED CONC. TO WET BASIS									
		6.8636	7.7632	1.6847					
EMISSION RATE		HC	NOX	CO					
		0.50670	0.00091048	3.4313					
EMISSION MASS/MODE									
		0.0084450	1.5175E-05	0.057188					
EMISSION MASS/RATED HP									
		5.2781E-05	9.4842E-08	0.00035742					
MODE EMIS./STD. CYCLE %									
		2.7780	0.0063228	0.85101					
CAL. FUEL AIR RATIO = 0.089559		MEAS. FUEL AIR RATIO = 0.089411		DIFF MEAS. & CAL. F/A PERCENT = 0.16499					
CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4					
	283.83	298.99	286.79	302.73					
EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2			
	523.08	687.74	-377.70	-75.984	627.00	626.01			
ENGINE OIL	EOILT	SOILT	OTLP	MANIFOLD PRESSURE = 11.092					
	160.57	169.50	45.581						
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.280						
	4.5941	591.24							
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2					
	79.649	80.267	-71.378	76.466					
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW					
	92.614	4.0066	53.538	2732.2					
CELL TEMP. = 88.919		HEATER TEMP = 106.62		COOLER TEMP = 74.730					

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NASA-LEWIS PRELIMINARY DATA 04/15/76 CADDEII REC 04/15/76 19:37:41.182 FAC SEX15 PGM C003 RDG 3423

LEANOUT 25 BTDC I & T 80 DEG HUM = 60 % 3/4 T CLOSED MODE = 2.0000 NO. SCANS = 3

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.100 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	80.740	29.098	19.029	80.544	1.0941	14.298

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	91.891	5.7936	44.340	3.9363	7.0157	6.1671

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	84.814	-0.062732	0.75047	0.00000	58.806	64.992

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	58.806	68.844	95.091	2.1836 2.0178

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.087104	0.085936	1.3001	1201.5	1202.3	8.4592	1.9352

WET CORRECTION FACTOR = 0.84527 EXHAUST MOLE. WT. = 27.131 EXHAUST DENSITY = 0.070248 EXHAUST FLOW RATE = 1252.0

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	4748.8	35.464	8.5584	10.195	0.25122
COPRECTED CONC. TO WET BASIS			7.2342	8.6176	0.21235

	HC	NOX	CO
EMISSION RATE	0.21515	0.0053259	6.6282
EMISSION MASS/MODE	0.039444	0.00097642	1.2152
EMISSION MASS/RATED HP	0.00024653	6.1026E-06	0.0075948
MODE EMIS./STD. CYCLE %	12.975	0.40684	18.083

CAL. FUEL AIR RATIO = 0.086965 MEAS. FUEL AIR RATIO = 0.087104 DIFF MEAS. & CAL. F/A PERCENT = -0.15944

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	271.23	281.79	274.57	278.22

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	552.71	985.66	-370.10	148.23	534.01	532.99

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 8.0647
	154.71	223.79	56.066	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.170
	15.386	1196.3	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	80.328	80.740	-72.830	75.763

ORIFICE AIR	TEMP	DEL TAP	ORFP	FLOW
	93.109	3.2983	53.545	2480.0

CELL TEMP. = 89.335 HEATER TEMP = 114.25 COOLER TEMP = 72.946

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NASA-LEWIS PRELIMINARY DATA 04/15/76 CADDEII REC 04/15/76 19:37:55.595 FAC SEX15 PGM C003 RDG 3424

LEANOUT 25 BTDC I & T 80 DEG HUM = 60 % 3/4 T CLOSED MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.100 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	80.928	29.100	19.469	82.331	1.1202	14.296

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	91.917	5.7963	44.339	3.9357	7.1617	6.1686

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	84.972	-0.074171	0.77658	0.00000	58.529	65.032

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	58.529	36.892	95.244	2.1871	1.8333

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.086987	0.085819	1.2983	1201.6	1202.1	7.6841	1.7580

WET CORRECTION FACTOR = 0.84485 EXHAUST MOLE. WT. = 27.139 EXHAUST DENSITY = 0.070270 EXHAUST FLOW RATE = 1289.5

MEASURED CONC.	PART PER MILLION WET	PER CENT			
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	4941.5	34.723	8.5246	10.192	0.25825
CORRECTED CONC. TO WET BASIS			7.2020	8.6103	0.21818

	HC	NOX	CO
EMISSION RATE	0.22875	0.0053283	6.7423
EMISSION MASS/MODE	0.011438	0.00026641	0.33711
EMISSION MASS/RATED HP	7.1486E-05	1.5651E-06	0.0021070
MODE EMIS./STD. CYCLE %	3.7624	0.11101	5.0166

CAL. FUEL AIR RATIO = 0.086992 MEAS. FUEL AIR RATIO = 0.086987 DIFF MEAS. & CAL. F/A PERCENT = 0.0054817

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	271.16	281.72	274.40	278.21

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1507.9	985.40	-454.00	-454.00	529.75	528.44

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	154.46	280.64	56.150	8.0674

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	3.3627	1184.7	29.147

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	80.514	80.928	-38.376	76.124

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	93.135	0.025102	53.466	106.55

CELL TEMP. = 89.469 HEATER TEMP = 110.24 COOLER TEMP = 74.133

NASA-LEWIS PRELIMINARY DATA 04/15/76 CADDEII REC 04/15/76 19:41:57.236 FAC SEX15 PGM C003 RDG 3425

LEANOUT 25 BTDC I & T 80 DEG HUM = 60 % 3/4 T CLOSED MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.100 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	81.439	29.097	10.542	44.635	0.60669	14.292

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	92.527	5.8389	44.324	3.9343	3.8944	6.1827

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	84.858	-0.066422	0.81118	0.00000	57.492	64.997

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	57.492	47.443	95.147	2.1849	0.68239

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.087250	0.086080	1.3022	611.58	612.24	5.6172	0.65411

WET CORRECTION FACTOR = 0.86411 EXHAUST MOLE. WT. = 27.120 EXHAUST DENSITY = 0.070219 EXHAUST FLOW RATE = 699.75

MEASURED CONC.	PART PER MILLION WET	NOX PPM	CO DRY	PER CENT	O2 DRY
	18020.	12.527	7.0732	9.5579	2.1424
CORRECTED CONC. TO WET BASIS			6.1120	8.2591	1.8513

	HC	NOX	CO
EMISSION RATE	0.45270	0.0010431	3.1050
EMISSION MASS/MODE	0.0075450	1.7386E-05	0.051750
EMISSION MASS/RATED HP	4.7156E-05	1.0866E-07	0.00032344
MODE EMIS./STD. CYCLE %	2.4819	0.0072440	0.77008

CAL. FUEL AIR RATIO = 0.085137 MEAS. FUEL AIR RATIO = 0.087250 DIFF MEAS. & CAL. F/A PERCENT = -2.4222

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	250.27	260.76	248.65	254.92

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1266.7	733.05	-454.00	-145.25	467.39	465.40

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE
	151.46	246.05	47.073	10.802

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	4.0108	604.14	28.853

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	80.937	81.439	-65.419	75.361

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	93.552	1.0276	53.498	1415.6

CELL TEMP. = 89.739 HEATER TEMP = 99.034 COOLER TEMP = 66.614

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NASA-LEWIS	PRELIMINARY DATA	04/15/76	CADDEII	REC 04/15/76 20:01:20.262	FAC SEX15	PGM C003	RDG 3427
LEANOUT 25 BTDC, I & T 80 DEG HUM = 60 % NEUTRAL	MODE = 2.0000	NO. SCANS = 5					
ENGINE TIMING = 25.000	DEG.	BAROMETRIC PRESSURE = 29.100	RATED HP. = 160.00	HC RATIO = 2.1250			
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	80.540	29.095	22.141	93.697	1.2546	14.298	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	90.603	5.7396	44.373	10.809	9.1509	6.1602	
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	84.226	-0.069743	0.80675	0.00000	58.361	64.587	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	58.361	62.770	93.730	2.1524	1.1095		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.097665	0.096374	1.4577	1206.6	1205.7	4.6338	1.0646
WET CORRECTION FACTOR = 0.85439	EXHAUST MOLE. WT. = 26.381	EXHAUST DENSITY = 0.068306	EXHAUST FLOW RATE = 1524.1				
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	11286.	12.987	11.101	8.3969	0.46939		
CORRECTED CONC. TO WET BASIS			9.4846	7.1742	0.40104		
EMISSION RATE	HC	NOX	CO				
	0.61751	0.0023554	10.494				
EMISSION MASS/MODE	0.11321	0.00043183	1.9240				
EMISSION MASS/RATED HP	0.00070756	2.6989E-06	0.012025				
MODE EMIS./STD. CYCLE %	37.240	0.17993	28.631				
CAL. FUEL AIR RATIO = 0.097265	MEAS. FUEL AIR RATIO = 0.097665	DIFF MEAS. & CAL. F/A PERCENT = -0.40945					
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	252.04	263.27	246.77	249.77			
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	1343.3	1018.8	-447.28	-142.28	493.84	493.00	
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 8.7149			
	148.73	217.12	58.158				
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.137				
	6.0990	1210.7					
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2			
	80.214	80.540	-91.359	76.033			
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW			
	92.213	3.0078	53.503	2373.7			
CELL TEMP. = 88.474	HEATER TEMP = 112.20	COOLER TEMP = 69.837					

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NASA-LEWIS		PRELIMINARY DATA		04/15/76		CAODEII		REC 04/15/76 20:04:00.001		FAC SEX15		PGM C003		RDG 3429	
LEANOUT 25 BTDC 1 & T 80 DEG HUM = 60 % NEUTRAL															
MODE = 6.0000															
NO. SCANS = 4															
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 29.100				RATED HP. = 160.00				HC RATIO = 2.1250	
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
80.791		29.099		22.158		93.750		1.2608		14.296					
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
90.803		5.7414		44.368		10.770		9.1472		6.1551					
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
84.375		-0.079568		0.83442		0.00000		58.123		64.705					
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
58.123		34.826		94.140		2.1618		0.97438							
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
0.097569		0.096274		1.4563		1205.1		1205.4		4.0733		0.93462			
WET CORRECTION FACTOR = 0.85503				EXHAUST MOLE. WT. = 26.387				EXHAUST DENSITY = 0.068322				EXHAUST FLOW RATE = 1524.5			
MEASURED CONC.		PART PER MILLION WET		NOX PPM		CO DRY		PER CENT		CO2 DRY		O2 DRY			
10341.		16.763		11.010		8.4942		0.37289		0.31883					
CORRECTED CONC. TO WET BASIS				9.4140		7.2628		0.31883							
EMISSION RATE		HC		NOX		CO									
EMISSION MASS/MODE		0.56597		0.0030411		10.419									
EMISSION MASS/RATED HP		0.028298		0.00015205		0.52097									
MODE EMIS./STD. CYCLE %		0.00017686		9.5034E-07		0.0032561									
CAL. FUEL AIR RATIO = 0.096781		MEAS. FUEL AIR RATIO = 0.097569				DIFF MEAS. & CAL. F/A PERCENT = -0.80803									
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
261.75		272.84		260.94		266.16									
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
840.23		1027.0		-454.00		-72.096		473.43		472.82					
ENGINE OIL		EOILT		SOILT		OILP		MANIFOLD PRESSURE = 8.6742							
146.72		369.35		58.626											
DYNO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.317									
10.540		1221.9													
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
80.450		80.791		4.8173		76.000									
ORIFICE AIR		TEMP		DELTA P		ORFP		FLOW							
92.577		3.7426		53.517		2640.9									
CELL TEMP. = 88.720				HEATER TEMP = 108.07				COOLER TEMP = 74.300							



NASA-LEWIS PRELIMINARY DATA 04/15/76 CADDE11 REC 04/15/76 20:12:15.944 FAC SEX15 PGM C003 RDG 3431

LEANOUT 25 BTDC 1 & 80 DEG HUM = 60 % NEUTRAL MODE = 1.0000 NO. SCANS = 4

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.100 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	78.629	29.098	12.336	52.266	0.69875	14.291

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	88.819	5.7947	44.419	3.9440	5.0443	6.1765

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	81.650	-0.071957	0.75935	0.00000	62.006	64.530

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	62.006	61.161	93.584	2.1490	0.41627

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.096511	0.095238	1.4405	607.64	608.91	3.4587	0.40015

WET CORRECTION FACTOR = 0.86768 EXHAUST MOLE. WT. = 26.459 EXHAUST DENSITY = 0.068508 EXHAUST FLOW RATE = 846.75

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	26318.	4.6992	9.2144	7.9623	2.3375
CORRECTED CONC. TO WET BASIS			7.9951	6.9087	2.0282

	HC	NOX	CO
EMISSION RATE	0.80005	0.00047351	4.9149
EMISSION MASS/MODE	0.013334	7.8918E-06	0.081915
EMISSION MASS/RATED HP	8.3338E-05	4.9324E-08	0.00051197
MODE EMIS./STD. CYCLE %	4.3862	0.0032883	1.2190

CAL. FUEL AIR RATIO = 0.095164 MEAS. FUEL AIR RATIO = 0.096511 DIFF MEAS. & CAL. F/A PERCENT = -1.3959

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	219.42	228.02	204.34	207.61

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1608.6	779.45	-454.00	-169.57	365.67	364.37

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 11.588
	140.28	302.30	48.065	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 28.526
	4.7705	587.68	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	78.242	78.629	-15.867	75.153

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	90.138	2.5440	53.562	2196.5

CELL TEMP. = 86.184 HEATER TEMP = 93.434 COOLER TEMP = 69.755

NASA-LEWIS PRELIMINARY DATA 04/15/76 CADDEII REC 04/15/76 20:12:34.653 FAC SEX15 PGM C003 RDG 3432  
 LEANOUT 25 BTDC I & T 80 DEG HUM = 60 % NEUTRAL MODE = 7.0000 NO. SCANS = 4  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.100 RATED HP. = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	78.728	29.101	12.609	53.423	0.71666	14.293	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	88.764	5.7947	44.420	3.9420	5.0105	6.1907	
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	81.683	-0.067806	0.85864	0.00000	62.021	64.630	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	62.021	54.565	93.904	2.1563	0.99196		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.093789	0.092548	1.3998	605.39	606.06	8.2717	0.95345
WET CORRECTION FACTOR = 0.85484			EXHAUST MOLE. WT. = 26.646		EXHAUST DENSITY = 0.068994		EXHAUST FLOW RATE = 857.32
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	26365.	4.9205	9.3428	8.0364	2.2825		
CORRECTED CONC. TO WET BASIS			7.9866	6.8699	1.9512		
EMISSION RATE	HC	NOX	CO				
	0.81146	0.00050199	4.9710				
EMISSION MASS/MODE	0.013524	8.3666E-06	0.082850				
EMISSION MASS/RATED HP	8.4527E-05	5.2291E-08	0.00051781				
MODE EMIS./STD. CYCLE %	4.4488	0.0034861	1.2329				
CAL. FUEL AIR RATIO = 0.095671			MEAS. FUEL AIR RATIO = 0.093789		DIFF MEAS. & CAL. F/A PERCENT = 2.0062		
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	218.62	227.21	203.53	206.70			
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	1104.5	774.76	-454.00	-454.00	362.68	361.32	
ENGINE OIL	EQILT	SOILT	OILP	MANIFOLD PRESSURE = 11.543			
	139.89	157.11	48.115				
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.199				
	1.4041	573.81					
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2			
	78.287	78.728	40.559	75.173			
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW			
	90.128	2.4941	53.550	2176.1			
CELL TEMP. = 86.184	HEATER TEMP = 93.348		COOLER TEMP = 69.911				

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NASA-LEWIS PRELIMINARY DATA 04/15/76 CADDEIT REC 04/15/76 20:28:14.137 FAC SEX15 PGM C003 RDG 3433

LEANOUT 25 BTDC 1.6 T 80 DEG HUM = 60 % 3/4 T OPEN MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.100 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	80.434	29.097	13.417	56.840	0.76515	14.293

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	89.504	5.7639	44.401	7.6060	6.1146	6.1706

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	84.709	-0.051477	0.81588	0.00000	58.850	64.727

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	58.850	79.036	94.231	2.1639	0.75947

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10758	0.10615	1.6056	597.24	594.42	6.4090	0.72881

WET CORRECTION FACTOR = 0.89159 EXHAUST MOLE. WT. = 25.750 EXHAUST DENSITY = 0.066673 EXHAUST FLOW RATE = 955.70

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM NOX PPM CO DRY CO2 DRY O2 DRY	
	39695. 3.4283 10.355 6.3087 3.5622	
CORRECTED CONC. TO WET BASIS		5.6248 3.1760

EMISSION RATE	HC	NOX	CO
	1.3619	0.00038990	6.4057
EMISSION MASS/MODE	0.022699	6.4983E-06	0.10676
EMISSION MASS/RATED HP	0.00014187	4.0614E-08	0.00066725
MODE EMIS./STD. CYCLE %	7.4668	0.0027076	1.5887

CAL. FUEL AIR RATIO = 0.10269 MEAS. FUEL AIR RATIO = 0.10758 DIFF MEAS. & CAL. F/A PERCENT = -4.5420

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	272.35	292.08	272.18	290.75

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1108.3	842.24	-454.00	-112.14	569.72	569.54

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 12.833
	155.75	267.57	46.141	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.227
	10.391	592.14	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	79.949	80.434	-37.455	75.212

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	91.839	1.0482	53.565	1431.7

CELL TEMP. = 88.063 HEATER TEMP = 91.988 COOLER TEMP = 71.220

NASA-LE: IS PRELIMINARY DATA 04/15/76 CADDEII REC 04/15/76 20:30:40.236 FAC SEX15 PGM C003 RDG 3434

LEANOUT 25 BTDC I & T 80 DEG HUM = 60 % 3/4 T OPEN MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.100 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	80.531	29.101	23.558	99.829	1.3461	14.298

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	89.984	5.7177	44.389	11.828	10.171	6.1554

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	84.981	-0.068082	0.80509	0.00000	58.776	64.782

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	58.776	48.087	94.386	2.1674	1.3525

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10188	0.10053	1.5207	1202.5	1201.2	5.6672	1.2975

WET CORRECTION FACTOR = 0.85575 EXHAUST MOLE. WT. = 26.104 EXHAUST DENSITY = 0.067588 EXHAUST FLOW RATE = 1647.4

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	O2 DRY
	15156.	8.5528	12.011	0.56456
CORRECTED CONC. TO WET BASIS			10.278	0.48312

	HC	NOX	CO
EMISSION RATE	0.89639	0.0016767	12.293
EMISSION MASS/MODE	0.16434	0.00030740	2.2537
EMISSION MASS/RATED HP	0.0010271	1.9212E-06	0.014086
MODE EMIS./STD. CYCLE %	54.059	0.12808	33.537

CAL. FUEL AIR RATIO = 0.10226 MEAS. FUEL AIR RATIO = 0.10188 DIFF MEAS. & CAL. F/A PERCENT = 0.36798

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	264.33	279.99	263.82	271.66

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1316.9	1053.6	-454.00	-181.76	546.91	546.17

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 9.1881
	150.28	339.02	56.822	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.164
	13.451	1181.5	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	80.231	80.531	-59.021	75.210

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	92.083	2.0125	53.528	1963.8

CFLT TEMP. = 88.334 HEATER TEMP = 91.559 COOLER TEMP = 70.738

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NASA-LEWIS PRELIMINARY DATA 04/15/76 CADDEII REC 04/15/76 20:31:02.111 FAC SEX15 PGM C003 RDG 3435

LEANOUT 25 BTDC I & T 80 DEG HUM = 60 % 3/4 T OPEN MODE = 6.0000 NO. SCANS = 4

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.100 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	80.549	29.099	23.067	97.786	1.3182	14.300

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	90.073	5.7197	44.387	11.832	10.149	6.1532

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	84.946	-0.064346	0.73756	0.00000	58.737	64.780

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	58.737	45.547	94.363	2.1669	2.1896

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10378	0.10240	1.5490	1202.1	1203.7	9.1780	2.1006

WET CORRECTION FACTOR = 0.86250 EXHAUST MOLE. WT. = 25.983 EXHAUST DENSITY = 0.067276 EXHAUST FLOW RATE = 1623.9

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM NOX PPM CO DRY CO2 DRY O2 DRY	
	15520. 8.6359 11.980 7.7496 0.61836	
CORRECTED CONC. TO WET BASIS		10.332 6.6840 0.53334

	HC	NOX	CO
EMISSION RATE	0.90482	0.0016689	12.182
EMISSION MASS/MODE	0.045241	8.3443E-05	0.60908
EMISSION MASS/RATED HP	0.00028276	5.2152E-07	0.0038068
MODE EMIS./STD. CYCLE %	14.882	0.034768	9.0637

CAL. FUEL AIR RATIO = 0.10201 MEAS. FUEL AIR RATIO = 0.10378 DIFF MEAS. & CAL. F/A PERCENT = -1.7075

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	264.90	280.01	264.32	272.30

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1858.4	1054.5	-454.00	-454.00	543.90	542.87

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 9.1517
	149.85	135.30	56.711	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.224
	1.9802	1204.0	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	80.207	80.549	39.975	75.070

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	92.174	1.2889	53.562	1584.4

CELL TEMP. = 88.480 HEATER TEMP = 91.518 COOLER TEMP = 69.565

NASA-LEWIS		PRELIMINARY DATA		04/15/76	CADDEII	REC 04/15/76 20:38:37.504	FAC SEX15	PGM C003	RDG 3437
LEANOUT 25 BTDC I & T 80 DEG HUM = 60 % 3/4 T OPEN MODE = 7.0000 NO. SCANS = 5									
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.100		RATED HP. = 160.00		HC RATIO = 2.1250	
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL			
	78.660	29.097	14.850	62.853	0.85033	14.293			
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP			
	88.002	5.7531	44.440	7.9126	6.3666	6.1698			
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT			
	81.765	-0.065591	0.77797	0.00000	62.678	64.867			
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP				
	62.678	45.611	94.702	2.1747	0.62062				
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP		
	0.10129	0.099942	1.5118	591.90	590.34	5.2922	0.59643		
WET CORRECTION FACTOR = 0.87260		EXHAUST MOLE. WT. = 26.141		EXHAUST DENSITY = 0.067687		EXHAUST FLOW RATE = 1035.2			
MEASURED CONC.	PART PER MILLION WET		PER CENT						
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY				
	38247.	4.1404	10.087	6.5441	3.4480				
CORRECTED CONC. TO WET BASIS			8.8017	5.7104	3.0087				
EMISSION RATE	HC	NOX	CO						
	1.4214	0.00051006	6.6150						
EMISSION MASS/MODE	0.023691	8.5009E-06	0.11025						
EMISSION MASS/RATED HP	0.00014807	5.3131E-08	0.00068907						
MODE EMIS./STD. CYCLE %	7.7930	0.0035421	1.6406						
CAL. FUEL AIR RATIO = 0.10174		MEAS. FUEL AIR RATIO = 0.10129		DIFF MEAS. & CAL. F/A PERCENT = 0.43762					
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4					
	214.36	232.50	206.64	215.99					
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2			
	884.59	837.79	-454.00	-180.80	415.97	414.94			
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 12.906					
	141.43	150.01	47.609						
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 28.918						
	11.348	576.12							
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2					
	78.271	78.660	7.2871	75.626					
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW					
	89.713	3.0029	53.521	2377.2					
CELL TEMP. = 85.840		HEATER TEMP = 94.548		COOLER TEMP = 73.786					

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NASA-LEWIS PRELIMINARY DATA 04/15/76 CADDEII REC 04/15/76 20:48:21.419 FAC SEX15 PGM C003 RDG 3439

LEANOUT 25 BTDC I & T 80 DEG HUM = 60 % 1 1/2 T OPEN MODE = 1.0000 NO. SCANS = 3

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.100 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	79.770	29.093	15.232	64.515	0.87242	14.291

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	88.826	5.7441	44.419	8.2962	6.8457	6.1571

COOLING AIR	TEMP	UDEL-HOOD	DFL-HOOD	FLOW	REL-HUM	DEW-POINT
	84.331	-0.062732	0.78507	0.00000	60.402	64.851

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	60.402	47.121	94.659	2.1737 0.72933

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10611	0.10469	1.5837	594.96	593.06	6.1812	0.70022

WET CORRECTION FACTOR = 0.88945 EXHAUST MOLE. WT. = 25.839 EXHAUST DENSITY = 0.066903 EXHAUST FLOW RATE = 1079.7

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM NOX PPM CO DRY CO2 DRY O2 DRY	
	44691. 4.1804 10.317 5.7740 4.2774	
CORRECTED CONC. TO WET BASIS		9.1764 5.1357 3.8046

EMISSION RATE	HC	NOX	CO
	1.7322	0.00053710	7.1928
EMISSION MASS/MODE	0.028870	8.9517E-06	0.11988
EMISSION MASS/RATED HP	0.00018044	5.5948E-08	0.00074925
MODE EMIS./STD. CYCLE %	9.4969	0.0037299	1.7839

CAL. FUEL AIR RATIO = 0.10370 MEAS. FUEL AIR RATIO = 0.10611 DIFF MEAS. & CAL. F/A PERCENT = -2.2689

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	253.98	280.27	257.68	275.66

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	714.47	887.37	-426.26	-54.293	612.39	611.31

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 13.184
	157.59	255.83	46.045	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.058
	12.433	592.06	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	79.328	79.770	-45.128	75.196

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	90.876	0.044338	53.577	177.57

CELL TEMP. = 87.238 HEATER TEMP = 90.839 COOLER TEMP = 71.163

NASA-LEWIS PRELIMINARY DATA 04/15/76 CADDEII REC 04/15/76 20:50:44.133 FAC SEX15 PGM C003 KDC 3440

LEANOUT 25 BTDC I & T 80 DEG HUM = 60 % 1 1/2 T OPEN MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.100 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	79.861	29.107	24.877	105.42	1.4262	14.296

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	89.469	5.7084	44.402	12.627	10.933	5.1521

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	84.419	-0.073894	0.81311	0.00000	60.267	64.872

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	60.267	45.403	94.702	2.1747 0.80244

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10371	0.10232	1.5479	1201.5	1202.5	3.3670	0.77027

WET CORRECTION FACTOR = 0.85596 EXHAUST MOLE. WT. = 25.988 EXHAUST DENSITY = 0.067288 EXHAUST FLOW RATE = 1750.4

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM NOX PPM CO DRY CO2 DRY O2 DRY	
	18131. 7.1687 12.266 7.4410 0.66917	
CORRECTED CONC. TO WET BASIS		10.500 6.3693 0.57278

	HC	NOX	CO
EMISSION RATE	1.1394	0.0014932	13.343
EMISSION MASS/MODE	0.20889	0.00027375	2.4462
EMISSION MASS/RATED HP	0.0013055	1.7110E-06	0.015289
MODE EMIS./STD. CYCLE %	68.712	0.11406	36.401

CAL. FUEL AIR RATIO = 0.10471 MEAS. FUEL AIR RATIO = 0.10371 DIFF MEAS. & CAL. F/A PERCENT = 0.96825

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	255.98	277.30	259.69	265.83

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1493.5	1084.4	-454.00	-155.42	586.85	584.86

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 9.4300
	152.13	360.40	56.070	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.091
	15.734	1200.6	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	79.526	79.861	-30.347	75.078

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	91.108	1.0758	53.539	1451.1

CELL TEMP. = 87.705 HEATER TEMP = 90.634 COOLER TEMP = 71.336



NASA-LEWIS PRELIMINARY DATA 04/15/76 CADDEII REC 04/15/76 20:51:06.495 FAC SEX15 PGM C003 RDG 3441

LEANOUT 25 BTDC I & T 80 DEG HUM = 60 % 1 1/2 T OPEN MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.100 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	79.958	29.097	24.482	103.70	1.4031	14.295

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	89.486	5.7057	44.402	12.662	10.900	6.1446

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	84.393	-0.072234	0.72732	0.00000	60.075	64.872

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	60.075	9.4289	94.706	2.1748	1.4723

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10511	0.10370	1.5588	1201.8	1201.8	6.1756	1.4131

WET CORRECTION FACTOR = 0.85048 EXHAUST MOLE. WT. = 25.901 EXHAUST DENSITY = 0.067063 EXHAUST FLOW RATE = 1729.8

MEASURED CONC.	PART PER MILLION WET	NOX PPM	CO DRY	PER CENT CO2 DRY	O2 DRY
	17441.	6.8787	12.306	7.4681	0.60276
CORRECTED CONC. TO WET BASIS			10.589	6.4262	0.51866

EMISSION RATE	HC	NOX	CO
	1.0832	0.0014160	13.299
EMISSION MASS/MODE	0.054158	7.0799E-05	0.66494
EMISSION MASS/RATED HP	0.00033848	4.4249E-07	0.0041559
MODE EMIS./STD. CYCLE %	17.815	0.029500	9.8949

CAL. FUEL AIR RATIO = 0.10457 MEAS. FUEL AIR RATIO = 0.10511 DIFF MEAS. & CAL. F/A PERCENT = -0.51276

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	257.60	277.87	261.01	267.06

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1641.6	1092.0	-454.00	-454.00	582.73	581.09

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	151.64	-71.330	56.182	9.4072

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	8.9001	1205.8	29.137

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	79.649	79.958	60.169	75.284

ORIFICE AIR	TEMP	DEL TAP	ORFP	FLOW
	91.151	1.0526	53.511	1435.6

CELL TEMP. = 87.783 HEATER TEMP = 90.592 COOLER TEMP = 72.789

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NASA-LEVIS PRELIMINARY DATA 04/15/76 CADDEII REC 04/15/76 20:55:37.351 FAC SEX15 PGM C003 RDG 3442

LEANOUT 25 BTDC I & T 80 DEG HUM = 60 % 1 1/2 T OPEN MODE = 7.0000 NO. SCANS = 4

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.100 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	80.813	29.096	15.087	63.915	0.86455	14.292

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	90.095	5.7448	44.386	8.3652	6.8257	6.1724

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	84.716	-0.059849	0.73998	0.00000	58.398	64.861

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	58.398	54.510	94.586	2.1743	0.086325

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10679	0.10537	1.5939	587.91	590.98	0.73966	0.082797

WET CORRECTION FACTOR = 0.89499 EXHAUST MOLE WT. = 25.797 EXHAUST DENSITY = 0.066796 EXHAUST FLOW RATE = 1072.0

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM NOX PPM CO DRY	CO2 DRY O2 DRY
	44974. 3.7341 10.205	5.7462 4.4319
CORRECTED CONC. TO WET BASIS		9.1336 5.1428 3.9665

	HC	NOX	CO
EMISSION RATE	1.7308	0.00047636	7.1084
EMISSION MASS/MODE	0.028847	7.9393E-06	0.11847
EMISSION MASS/RATED HP	0.00018030	4.9620E-08	0.00074046
MODE EMIS./STD. CYCLE %	9.4893	0.0033080	1.7630

CAL. FUEL AIR RATIO = 0.10286 MEAS. FUEL AIR RATIO = 0.10679 DIFF MEAS. & CAL. F/A PERCENT = -3.6862

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	241.90	260.89	240.75	254.39

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1213.4	897.98	-454.00	7.2314	501.69	500.31

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 13.368
	147.99	241.82	47.020	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.697
	3.6724	586.48	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	80.394	80.813	6.6264	75.119

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	91.619	2.5012	53.513	2176.1

CELL TEMP. = 88.043 HEATER TEMP = 90.300 COOLER TEMP = 71.338

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13	NASA-LEWIS	PRELIMINARY DATA	04/15/76	CADDEIT	REC 04/15/76 21:23:54.810	FAC SEX15	PGM C003	RDG 3444
14	LEANOUT 25 BTDC I & T 80 DEG HUM = 80 % 1 1/2 T CLOS MODE = 2.0000				NO. SCANS = 5			
15	ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.100		RATED HP. = 160.00		HC RATIO = 2.1250
16	COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
17		78.377	29.098	18.431	77.651	1.3675	14.295	
18	COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
19		88.613	5.8146	44.424	3.9415	6.0216	6.1677	
20	COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
21		83.286	-0.068082	0.83747	0.00000	81.840	72.368	
22	REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
23		81.840	55.141	123.28	2.8309	1.4051		
24	ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
25		0.077547	0.076205	1.1574	1203.0	1203.4	5.8589	1.3420
26	WET CORRECTION FACTOR = 0.83273		EXHAUST MOLE. WT. = 27.879		EXHAUST DENSITY = 0.072185		EXHAUST FLOW RATE = 1178.1	
27	MEASURED CONC.	PART PER MILLION WET		PER CENT				
28		HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
29		2520.3	45.987	5.4295	11.966	0.21038		
30	CORRECTED CONC. TO WET BASIS			4.5213	9.9644	0.17519		
31		HC	NOX	CO				
32	EMISSION RATE	0.10659	0.0064470	3.8670				
33	EMISSION MASS/MODE	0.019541	0.0011819	0.70896				
34	EMISSION MASS/RATED HP	0.00012213	7.3871E-06	0.0044310				
35	MODE EMIS./STD. CYCLE %	6.4281	0.49248	10.550				
36	CAL. FUEL AIR RATIO = 0.078610		MEAS. FUEL AIR RATIO = 0.077547		DIFF MEAS. & CAL. F/A PERCENT = 1.3707			
37	CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
38		268.33	295.81	286.45	299.41			
39	EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
40		1217.6	1088.3	-406.72	-4.1942	604.29	604.08	
41	ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 8.0071			
42		155.96	303.23	55.381				
43	DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.032				
44		5.8974	1199.0					
45	INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2			
46		77.997	78.377	-41.307	74.755			
47	ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW			
48		89.233	2.0250	53.547	1974.6			
49	CELL TEMP. = 85.481		HEATER TEMP = 99.610		COOLER TEMP = 66.944			

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NASA-LEVIS PRELIMINARY DATA 04/15/76 CADDEII REC 04/15/76 21:24:17.194 FAC SEX15 PGM C003 RDG 3445

LEANOUT 25 BTDC I & T 80 DEG HUM = 80 % 1 1/2 T CLOS MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.100 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	78.183	29.100	18.586	78.283	1.3776	14.296

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	88.412	5.8095	44.430	3.9403	6.2976	6.1683

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	82.970	-0.067806	0.81505	0.00000	82.310	72.348

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	82.310	60.614	123.18	2.8287	1.9142

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.080447	0.079056	1.2007	1200.4	1202.3	8.0008	1.8287

WET CORRECTION FACTOR = 0.84457 EXHAUST MOLE. WT. = 27.645 EXHAUST DENSITY = 0.071579 EXHAUST FLOW RATE = 1200.9

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	2573.3	45.685	5.4458	11.993	0.17908
CORRECTED CONC. TO WET BASIS			4.5994	10.129	0.15124

	HC	NOX	CO
EMISSION RATE	0.11094	0.0065285	4.0099
EMISSION MASS/MODE	0.0055469	0.00032643	0.20050
EMISSION MASS/RATED HP	3.4668E-05	2.0402E-06	0.0012531
MODE FMIS./STD. CYCLE %	1.8246	0.13601	2.9836

CAL. FUEL AIR RATIO = 0.078731 MEAS. FUEL AIR RATIO = 0.080447 DIFF MEAS. & CAL. F/A PERCENT = -2.1332

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	259.41	294.88	285.14	297.27

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1878.9	1082.7	-386.76	-454.00	597.07	596.72

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 8.0096
	155.53	-40.314	55.354	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.133
	11.752	1182.7	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	77.811	78.183	-7.9316	74.966

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	88.937	2.0149	53.526	1970.5

CELL TEMP. = 85.288 HEATER TEMP = 104.53 COOLER TEMP = 69.561

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NASA-LEWIS	PPELIMINARY DATA	04/15/76	CADDEII	REC 04/15/76 21:30:49.416	FAC SEX15	PGM C003	RDG 3446
LEANOUT 25 BTDC I & T 80 DEG HUM = 80 % 1 1/2 T CLOS MODE = 7.0000				NO. SCANS = 5			
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.100		RATED HP. = 160.00		HC RATIO = 2.1250
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	78.863	29.098	11.736	49.368	0.90829	14.295	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	89.809	5.8533	44.394	3.9405	3.4143	6.1824	
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	82.354	-0.074171	0.78848	0.00000	84.035	73.628	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP			
	84.035	50.069	128.79	2.9574 0.95037			
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.069162	0.067912	1.0323	595.50	599.82	7.9925	0.90623
WET CORRECTION FACTJR = 0.85803		EXHAUST MOLE. WT. = 28.522		EXHAUST DENSITY = 0.073850		EXHAUST FLOW RATE = 727.01	
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	C2 DRY		
	13987.	25.361	1.9328	11.691	3.2355		
CORRECTED CONC. TO WET BASIS			1.6584	10.031	2.7762		
EMISSION RATE	HC	NOX	CO				
	0.36507	0.0021940	0.87532				
EMISSION MASS/MODE	0.0060844	3.6567E-05	0.014589				
EMISSION MASS/RATED HP	3.8028E-05	2.2855E-07	9.1179E-05				
MODE EMIS./STD. CYCLE %	2.0015	0.015236	0.21709				
CAL. FUEL AIR RATIO = 0.068555		MEAS. FUEL AIR RATIO = 0.069162		DIFF MEAS. & CAL. F/A PERCENT = -0.87715			
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	218.87	254.96	243.60	249.78			
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	1458.1	944.23	-435.58	18.914	475.37	473.95	
ENGINE OIL	EDILT	SOILT	OILP	MANIFOLD PRESSURE = 11.408			
	150.19	394.67	47.173				
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.249				
	2.6859	600.96					
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2			
	78.448	78.863	-40.976	74.888			
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW			
	89.312	2.0189	53.523	1971.6			
CELL TEMP. = 85.630		HEATER TEMP = 105.85		COOLER TEMP = 66.426			

NASA-LEWIS PRELIMINARY DATA 04/15/76 CADDEII REC 04/15/76 21:31:10.774 FAC SEX15 PGM C003 RDG 3447

LEANOUT 25 BTDC I & T 80 DEG HUM = 80 % 1 1/2 T CLOS MODE = 1.0000 NO. SCANS = 4

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.100 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	79.005	29.098	11.882	49.941	0.92340	14.290

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	89.909	5.8543	44.391	3.9415	3.3341	6.1784

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	82.398	-0.070919	0.75247	0.00000	84.021	73.762

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	84.021	48.287	129.43	2.9721	0.10404

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.066760	0.065548	0.93642	595.26	595.86	0.87509	0.099182

WET CORRECTION FACTOR = 0.84317 EXHAUST MOLE. WT. = 28.695 EXHAUST DENSITY = 0.074299 EXHAUST FLOW RATE = 729.46

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	O2 DRY
	14572.	25.950	1.9510	3.2951
CORRECTED CONC. TO WET BASIS			1.6450	2.7783

	HC	NOX	CO
EMISSION RATE	0.38163	0.0022526	0.87117
EMISSION MASS/MODE	0.0063604	3.7544E-05	0.014520
EMISSION MASS/RATED HP	3.9753E-05	2.3465E-07	9.0747E-05
MODE EMIS./STD. CYCLE %	2.0922	0.015643	0.21606

CAL.FUEL AIR RATIO = 0.068846 MEAS. FUEL AIR RATIO = 0.066760 DIFF MEAS.& CAL. F/A PERCENT = 3.1244

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	215.25	253.00	241.46	247.64

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1314.9	946.94	-454.00	-454.00	469.83	468.67

ENGINE OIL	EJILT	SOILT	OILP	MANIFOLD PRESSURE = 11.660
	149.67	-93.495	47.000	

DYNO COND.	TORQUE	RPM	CYL.BACK PRESSURE = 29.215
	3.5644	592.03	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	78.585	79.005	25.182	75.102

ORIFICE AIR	TEMP	DELTAP	DRFP	FLOW
	89.342	1.2633	53.539	1572.9

CELL TEMP. = 85.866 HEATER TEMP = 106.03 COOLER TEMP = 68.215

NASA-LEWIS PRELIMINARY DATA 04/15/76 CADDEII REC 04/15/76 22:03:36.019 FAC SEX15 PGM C003 RDG 3449  
 LEANOUT 25 BTDC I & T 80 DEG HUM = 80 % 3/4 T-CLOSED MODE = 2.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.100 RATED HP. = 160.00 HC RATIO = 2.1250  
 COMB. AIR TEMP 80.081 PRESS 29.099 CFM 18.415 DRY FLOW 77.499 VAPOR FLOW 1.4074 PRESS TOTAL 14.297  
 COMB. FUEL TEMP 92.553 PRESS 5.8131 DENSITY 44.323 TURBO FLOW 3.9342 FLOW TRON 6.8227 FPIP 6.1605  
 COOLING AIR TEMP 85.516 UDEL-HOOD -0.061440 DEL-HOOD 0.75472 FLOW 0.00000 REL-HUM 79.746 DEW-POINT 73.258  
 REL-HUM 1 2 HUMIDITY % H2O VAPOR CORRECTED HP  
 79.746 69.737 127.12 2.9192 0.87768  
 ENG. COND. F/A DRY F/A WET EQU. RATIO RPM-1 RPM-2 TORQUE BHP  
 0.088036 0.086466 1.3140 1200.5 1200.4 3.6587 0.83629  
 WET CORRECTION FACTOR = 0.84590 EXHAUST MOLE. WT. = 27.061 EXHAUST DENSITY = 0.070068 EXHAUST FLOW RATE = 1223.5  
 MEASURED CONC. PART PER MILLION WET PER CENT  
 HC PPM NOX PPM CO DRY CO2 DRY O2 DRY  
 5044.5 36.730 8.2164 10.384 0.27143  
 CORRECTED CONC. TO WET BASIS 6.9503 8.7840 0.22960  
 HC NOX CO  
 EMISSION RATE 0.22157 0.3053477 6.1737  
 EMISSION MASS/MODE 0.040622 0.00098042 1.1318  
 EMISSION MASS/RATED HP 0.00025389 6.1276E-06 0.0070740  
 MODE EMIS./STD. CYCLE % 13.363 0.40851 16.843  
 CAL. FUEL AIR RATIO = 0.086196 MEAS. FUEL AIR RATIO = 0.088036 DIFF MEAS. & CAL. F/A PERCENT = -2.0903  
 CYL TEMP DEG.F CYL-1 CYL-2 CYL-3 CYL-4  
 276.41 291.69 278.14 285.21  
 EXT GAS TEMP DEG.F EXT-1 EXT-2 EXT-3 EXT-4 SEXT-1 SEXT-2  
 1484.9 992.45 -367.63 -169.13 644.62 641.00  
 ENGINE OIL EOILT SOILT OILP MANIFOLD PRESSURE = 8.0031  
 183.16 305.72 52.925  
 DYNO COND. TORQUE RPM CYL. BACK PRESSURE = 29.056  
 3.5067 1192.6  
 INDUCTION AIR IAIRT1 IAIRT2 TAIRT1 TAIRT2  
 79.649 80.081 -65.786 74.964  
 ORIFICE AIR TEMP DELTAP DRFP FLOW  
 90.062 0.089809 53.599 319.72  
 CELL TEMP. = 87.460 HEATER TEMP = 89.445 COOLER TEMP = 68.811



NASA-LEWIS PRELIMINARY DATA 04/15/76 CADDEII REC 04/15/76 22:03:57.360 FAC SEX15 PGM C003 RDG 3450  
 LEANOUT 25 BTDC I & T 80 DEG HUM = 80 % 3/4 T CLOSED MODE = 6.0000 NO. SCANS = 4  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.100 RATED HP. = 160.00 HC RATIO = 2.1250  
 COMB. AIR TEMP 80.108 PRESS 29.099 CFM 18.720 DRY FLOW 78.764 VAPOR FLOW 1.4318 PRESS TOTAL 14.295  
 COMB. FUEL TEMP 92.598 PRESS 5.8135 DENSITY 44.322 TURBO FLOW 3.9333 FLOW TRON 6.7507 FPIP 6.1619  
 COOLING AIR TEMP 85.472 UDEL-HOOD -0.065384 DEL-HOOD 0.82854 FLOW 0.00000 REL-HUM 79.738 DEW-POINT 73.281  
 REL-HUM 1 2 HUMIDITY % H2O VAPOR CORRECTED HP  
 79.738 61.344 127.25 2.9220 0.86333  
 ENG. COND. F/A DRY F/A WET EQU. RATIO RPM-1 RPM-2 TORQUE BHP  
 0.085708 0.084178 1.2792 1202.0 1203.3 3.5941 0.82256  
 WET CORRECTION FACTOR = 0.83603 EXHAUST MOLE. WT. = 27.236 EXHAUST DENSITY = 0.070520 EXHAUST FLOW RATE = 1232.9  
 MEASURED CONC. PART PER MILLION WFT PER CENT  
 HC PPM NOX PPM CO DRY CO2 DRY O2 DRY  
 5480.5 36.479 8.2244 10.396 0.30856  
 CORRECTED CONC. TO WET BASIS 6.8758 8.6916 0.25796  
 EMISSION RATE HC NOX CO  
 0.24258 0.0053521 6.1545  
 EMISSION MASS/MODE 0.012129 0.00026760 0.30773  
 EMISSION MASS/RATED HP 7.5806E-05 1.6725E-06 0.0019233  
 MODE EMIS./STD. CYCLE % 3.9898 0.11150 4.5793  
 CAL. FUEL AIR RATIO = 0.086317 MEAS. FUEL AIR RATIO = 0.085708 DIFF MEAS. & CAL. F/A PERCENT = 0.71011  
 CYL TEMP DEG. F CYL-1 CYL-2 CYL-3 CYL-4  
 275.89 290.98 277.92 285.06  
 EXT GAS TEMP DEG. F EXT-1 EXT-2 EXT-3 EXT-4 SEXT-1 SEXT-2  
 1645.7 993.17 -433.84 -454.00 638.33 635.16  
 ENGINE OIL EOILT SOILT OILP MANIFOLD PRESSURE = 8.0114  
 182.57 119.03 52.995  
 DYNO COND. TORQUE RPM CYL. BACK PRESSURE = 29.171  
 0.045005 1201.4  
 INDUCTION AIR IAIRT1 IAIRT2 TAIRT1 TAIRT2  
 79.700 80.108 -76.398 74.982  
 ORIFICE AIR TEMP DELTAP ORFP FLOW  
 90.138 0.047505 53.608 188.67  
 CELL TEMP. = 87.69% HEATER TEMP = 89.419 COOLER TEMP = 68.438

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NASA-LEWIS PRELIMINARY DATA 04/15/76 CADDEII REC 04/15/76 22:09:32.200 FAC SEX15 PGM C003 RDG 3451

LEANOUT 25 BTDC I & T 80 DEG HUM = 80 % 3/4 T CLOSED MODE = 7.0000 NO. SCANS = 4

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.100 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	81.254	29.105	10.325	43.439	0.79029	14.296

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	93.576	5.8416	44.297	3.9332	3.9116	6.1727

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	85.307	-0.051546	0.86833	0.00000	76.878	73.306

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	76.878	61.001	127.35	2.9244	0.63399

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.090049	0.088441	1.3440	595.33	592.48	5.3234	0.60343

WET CORRECTION FACTOR = 0.86608 EXHAUST MOLE. WT. = 26.913 EXHAUST DENSITY = 0.069685 EXHAUST FLOW RATE = 690.83

MEASURED CONC.	PART PER MILLION WET			PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	22317.	12.291	7.0907	9.2966	2.4852
CORRECTED CONC. TO WET BASIS			6.1411	8.0516	2.1524

	HC	NOX	CO
EMISSION RATE	0.55349	0.0010104	3.0800
EMISSION MASS/MODE	0.0092248	1.6841E-05	0.051334
EMISSION MASS/RATED HP	5.7655E-05	1.0526E-07	0.00032084
MODE EMIS./STD. CYCLE %	3.0345	0.0070170	0.76390

CAL. FUEL AIR RATIO = 0.086474 MEAS. FUEL AIR RATIO = 0.090049 DIFF MEAS. & CAL. F/A PERCENT = -3.9704

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	243.33	255.49	237.16	247.49

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1256.4	741.79	-454.00	-171.62	526.26	523.80

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 10.875
	171.72	210.19	45.355	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.404
	8.3618	591.51	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	80.780	81.254	-55.219	75.040

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	90.814	1.2879	53.605	1585.8

CELL TEMP. = 88.316 HEATER TEMP = 89.203 COOLER TEMP = 65.747

NASA-LEWIS PRELIMINARY DATA 04/15/76 CADDEII REC 04/15/76 22:09:51.194 FAC SEX15 PGM C003 RDG 3452  
 LEANOUT 25 BTDC I & T 80 DEG HUM = 80 % 3/4 T CLOSED MODE = 1.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.100 RATED HP = 160.00 HC RATIO = 2.1250  
 COMB. AIR TEMP 81.245 PRESS 29.094 CFM 10.303 DRY FLOW 43.360 VAPOR FLOW 0.78801 PRESS TOTAL 14.292  
 CCMB. FUEL TEMP 93.821 PRESS 5.8407 DENSITY 44.291 TURBO FLOW 3.9296 FLOW TRON 3.9094 FPIP 6.1881  
 COOLING AIR TEMP 85.314 UNEL-HOOD -0.071403 DEL-HOOD 0.78987 FLOW 0.00000 REL-HUM 76.803 DEW-POINT 73.268  
 REL-HUM 1 76.803 2 54.571 HUMIDITY 127.22 % H2O VAPOR CORRECTED HP 0.65343  
 ENG. COND. F/A DRY 0.090161 F/A WET 0.088552 EQU. RATIO 1.3457 RPM-1 591.18 RPM-2 591.24 TORQUE 5.5255 BHP 0.62197  
 WET CORRECTION FACTOR = 0.87056 EXHAUST MOLE. WT. = 26.905 EXHAUST DENSITY = 0.069664 EXHAUST FLOW RATE = 689.84  
 MEASURED CONC. PART PER MILLION WET HC PPM 22990. NOX PPM 12.160 CO DRY 6.9517 PER CENT CO2 DRY 9.2518 O2 DRY 2.7214  
 CORRECTED CONC. TO WET BASIS CO DRY 6.0519 PER CENT CO2 DRY 8.0542 O2 DRY 2.3691  
 EMISSION RATE HC 0.56936 NOX 0.00099825 CO 3.0310  
 EMISSION MASS/MODE 0.0094894 1.6637E-05 0.050516  
 EMISSION MASS/RATED HP 5.9309E-05 1.0398E-07 0.00031572  
 MODE EMIS./STD. CYCLE % 3.1215 0.0069323 0.75172  
 CAL. FUEL AIR RATIO = 0.085698 MEAS. FUEL AIR RATIO = 0.090161 DIFF MEAS. & CAL. F/A PERCENT = -4.9506  
 CYL TEMP DEG.F CYL-1 240.29 CYL-2 252.15 CYL-3 232.61 CYL-4 242.62  
 EXT GAS TEMP DEG.F EXT-1 1645.2 EXT-2 734.75 EXT-3 -405.10 EXT-4 -454.00 SEXT-1 519.46 SEXT-2 516.26  
 ENGINE OIL EOILT 171.02 SOILT 241.63 OILP 45.453 MANIFOLD PRESSURE = 11.032  
 DYNO COND. TORQUE 5.5013 RPM 586.32 CYL. BACK PRESSURE = 29.248  
 INDUCTION AIR IAIRT1 80.752 IAIRT2 81.245 TAIRT1 -36.205 TAIRT2 74.763  
 ORIFICE AIR TEMP 90.847 DELTAP 2.0197 ORFP 53.636 FLOW 1969.3  
 CELL TEMP. = 88.229 HEATER TEMP = 89.210 COOLER TEMP = 65.443

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NASA-LFWIS PRELIMINARY DATA 04/15/76 CADDEII REC 04/15/76 22:18:50.815 FAC SEX15 PGM C003 RDG 3453

LEANOUT 25 BTDC I & T 80 DEG HUM = 80 % NEUTRAL MODE = 1.0000 NO. SCANS = 4

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.100 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	78.894	29.091	11.512	48.463	0.87860	14.290

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	88.633	5.7977	44.424	5.9018	4.7442	6.1592

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	83.947	-0.055351	0.76904	0.00000	82.730	73.193

REL-HUM	i	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	82.730	57.861	126.90	2.9141	0.35136

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.097893	0.096150	1.4511	584.76	579.73	3.0107	0.33521

WET CORRECTION FACTOR = 0.85657 EXHAUST MOL. WT. = 26.365 EXHAUST DENSITY = 0.068266 EXHAUST FLOW RATE = 792.28

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	34790.	4.1417	9.44540	7.0151	3.4601	
CORRECTED CONC. TO WET BASIS			9.1851	6.0790	2.9984	

	HC	NOX	CO
EMISSION RATE	0.98956	0.00039048	4.7080
EMISSION MASS/MODE	0.016493	6.5080E-06	0.078467
EMISSION MASS/RATED HP	0.00010308	4.0675E-08	0.00049042
MODE EMIS./STD. CYCLE %	5.4252	0.0027117	1.1677

CAL. FUEL AIR RATIO = 0.097545 MEAS. FUEL AIR RATIO = 0.097893 DIFF MEAS. & CAL. F/A PERCENT = -0.35595

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	323.76	338.77	331.18	355.17

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1118.5	828.99	-171.16	-101.64	724.44	724.22

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	170.14	356.71	44.364	11.891

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	9.9730	581.91	29.006

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	78.364	78.894	-77.334	74.572

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	88.688	3.7446	53.564	2650.9

CELL TEMP. = 86.195 HEATER TEMP = 89.246 COOLER TEMP = 67.724

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10	NASA-LEWIS	PRELIMINARY DATA	04/15/76	CADDEII	REC 04/15/76 22:21:52.556	FAC SEX15	PGM C003	RDG 3455
20	LEANOUT 25 BTDC I & T 80 DEG HUM = 80 % NEUTRAL							
30	MODE = 6.0000				NO. SCANS = 3			
40	ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.100		RATED HP. = 160.00		HC RATIO = 2.1250
50	COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
60		79.063	29.099	21.339	89.829	1.6375	14.298	
70	COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
80		90.193	5.7506	44.384	10.117	8.4558	6.1606	
90	COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
100		84.302	-0.053968	0.77953	0.00000	82.757	73.368	
110	REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
120		82.757	7.968	127.60	2.9302	0.84571		
130	ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
140		0.094133	0.092448	1.4050	1205.2	1205.7	3.5142	0.80644
150	WET CORRECTION FACTOR = 0.83909		EXHAUST MOLE. WT. = 26.522		EXHAUST DENSITY = 0.068932		EXHAUST FLOW RATE = 1449.6	
160	PART PER MILLION WET		PER CENT					
170	MEASURED CONC.	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
180		10352.	17.123	10.804	8.6314	0.42298		
190	CORRECTED CONC. TO WET BASIS			9.0652	7.2425	0.35491		
200	HC		NOX	CO				
210	EMISSION RATE	0.53875		0.0029538	9.5401			
220	EMISSION MASS/MODE	0.026938		0.00014769	0.47701			
230	EMISSION MASS/RATED HP	0.00016836		9.2305E-07	0.0029813			
240	MODE EMIS./STD. CYCLE %	8.8611		0.061537	7.0983			
250	CAL. FUEL AIR RATIO = 0.096012		MEAS. FUEL AIR RATIO = 0.094133		DIFF MEAS. & CAL. F/A PERCENT = 1.9960			
260	CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
270		281.47	296.87	284.93	295.89			
280	EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
290		1862.3	1015.0	-363.18	-454.00	636.32	633.45	
300	ENGINE OIL	EOILT	SOILT	NOILP	MANIFOLD PRESSURE = 8.6593			
310		170.47	234.66	55.079				
320	DYKO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.060				
330		3.8524	1216.2					
340	INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2			
350		78.710	79.063	6.0054	74.779			
360	ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW			
370		89.277	0.036504	53.455	149.82			
380	CELL TEMP. = 86.742		HEATER TEMP = 89.041		COOLER TEMP = 69.082			

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NASA-LEWIS	PRELIMINARY DATA	04/15/76	CADDEII	REC 04/15/76 22:25:01.278	FAC SEX15	PGM C003	RDG 3456
LEANOUT 25 BTDC I & T 80 DEG HUM = 80 % NEUTRAL				MODE = 2.0000	NO. SCANS = 5		
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.100		RATE HP. = 160.00		HC RATIO = 2.1250
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	79.622	29.097	21.280	89.529	1.6317	14.299	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	90.603	5.7459	44.373	10.494	8.7759	6.1542	
COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	84.366	-0.071403	0.79789	0.00000	81.240	73.363	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	81.240	53.317	127.57	2.9296	0.87947		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.098023	0.096268	1.4630	1205.9	1206.3	3.6504	0.83818
WET CORRECTION FACTOR = 0.85222		EXHAUST MOLE. WT. = 26.357		EXHAUST DENSITY = 0.068243		EXHAUST FLOW RATE = 1464.4	
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	10368.	16.393	10.844	8.6520	0.39456		
CORRECTED CONC. TO WET BASIS			9.2416	7.3734	0.33625		
EMISSION RATE	HC	NOX	CO				
	0.54507	0.0028567	9.8253				
EMISSION MASS/MODE	0.099930	0.00052372	1.8013				
EMISSION MASS/RATED HP	0.00062456	3.2732E-06	0.011258				
MODE EMIS./STD. CYCLE %	32.872	0.21822	26.805				
CAL. FUEL AIR RATIO = 0.096069		MEAS. FUEL AIR RATIO = 0.098023		DIFF MEAS. & CAL. F/A PERCENT = -1.9930			
CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4			
	273.05	284.88	274.33	284.52			
EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	1497.1	1028.7	-434.67	-179.08	578.83	576.01	
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 8.6481			
	167.62	309.01	56.010				
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.138				
	4.2700	1209.9					
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2			
	79.305	79.622	-13.170	75.119			
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW			
	89.617	2.0377	53.734	1979.7			
CFL TEMP. = 87.223	HEAT FR TEMP = 88.940		COOLER TEMP = 71.336				

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NASA-LEWIS PRELIMINARY DATA 04/15/76 CADDEII REC 04/15/76 22:30:50.898 FAC SEX15 PGM C003 RDG 3457

LEANOUT 25 BTDC I & T 80 DEG HUM = 80 % NEUTRAL MODE = 7.0000 NO. SCANS = 4

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.100 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	80.736	29.098	11.778	49.509	0.90470	14.291

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	91.576	5.8033	44.348	3.9335	4.7405	6.1649

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	84.584	-0.069881	0.78288	0.00000	78.498	73.424

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	78.498	60.276	127.91	2.9373	0.31256

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.095750	0.094032	1.4291	586.03	586.11	2.6659	0.29758

WET CORRECTION FACTOR = 0.87703 EXHAUST MOLE. WT. = 26.511 EXHAUST DENSITY = 0.068642 EXHAUST FLOW RATE = 803.50

MEASURED CONC.	PART PER MILLION WET			PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	34223.	3.8229	8.38100	7.3533	3.9079
CORRECTED CONC. TO WET BASIS			7.3504	6.4491	3.4273

	HC	NOX	CO
EMISSION RATE	0.98719	0.00036553	4.2878
EMISSION MASS/MODE	0.016453	6.0921E-06	0.071463
EMISSION MASS/RATED HP	0.00010283	3.8076E-08	0.00044665
MODE EMIS./STD. CYCLE %	5.4122	0.0025384	1.0634

CAL. FUEL AIR RATIO = 0.092499 MEAS. FUEL AIR RATIO = 0.095750 DIFF MEAS. & CAL. F/A PERCENT = -3.3951

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	237.75	249.38	227.41	238.46

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	761.94	782.00	-454.00	10.699	475.54	473.43

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 11.886
	159.74	358.53	46.295	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 28.555
	0.49505	586.71	

INDUCTION AIR	IAIPT1	IAIRT2	TAIRT1	TAIRT2
	80.317	80.736	-54.121	75.291

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	90.182	1.3213	53.474	1606.7

CELL TEMP. = 87.541 HEATER TEMP = 91.777 COOLER TEMP = 71.316

NASA-LEWIS PRELIMINARY DATA 04/15/76 CADDEII REC 04/15/76 22:39:35.618 FAC SEX15 PGM C003 RDG 3458  
 LEANOUT 25 BTDC. I & T 80 DEG HUM = 80 % NEUTRAL MODE = 1.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.100 RATED HP. = 160.00 HC RATIO = 2.1250  
 COMB. AIR TEMP PRESS CFM DRY FLOW VAPOR FLOW PRESS TOTAL  
 78.254 29.100 13.962 58.716 1.0743 14.288  
 COMB. FUEL TEMP PRESS DENSITY TURBO FLOW FLOW TRON FPIP  
 87.503 5.7540 44.453 7.8433 6.2946 6.1686  
 COOLING AIR TEMP UNEL-HOOD DEL-HOOD FLOW REL-HUM DEW-POINT  
 83.401 -0.063654 0.77575 0.00000 85.234 73.453  
 REL-HUM 1 2 HUMIDITY % H2O VAPOR CORRECTED HP  
 85.234 48.963 128.07 2.9410 0.25015  
 ENG. COND. F/A DRY F/A WET EQU. RATIO RPM-1 RPM-2 TORQUE BHP  
 0.10721 0.10528 1.6001 589.92 588.66 2.1252 0.23871  
 WET CORRECTION FACTOR = 0.88594 EXHAUST MOLE. WT. = 25.772 EXHAUST DENSITY = 0.066731 EXHAUST FLOW RATE = 990.31  
 MEASURED CONC. PART PER MILLION WET PER CENT  
 HC PPM NOX PPM CO DRY CO2 DRY O2 DRY  
 41314. 4.5865 10.2710 6.1299 3.8198  
 CORRECTED CONC. TO WET BASIS 9.0998 5.4307 3.3841  
 EMISSION RATE HC NOX CO  
 1.4688 0.00054050 6.5425  
 EMISSION MASS/MODE 0.024480 9.0083E-06 0.10904  
 EMISSION MASS/RATED HP 0.00015300 5.6302E-08 0.00068151  
 MODE EMIS./STD. CYCLE % 8.0526 0.3037535 1.6226  
 CAL. FUEL AIR RATIO = 0.10292 MEAS. FUEL AIR RATIO = 0.10721 DIFF MEAS. & CAL. F/A PERCENT = -4.0014  
 CYL TEMP DEG. F CYL-1 CYL-2 CYL-3 CYL-4  
 291.04 311.55 296.90 320.06  
 EXT GAS TEMP DEG. F EXT-1 EXT-2 EXT-3 EXT-4 SEXT-1 SEXT-2  
 1838.4 862.32 -454.00 311.76 669.04 668.18  
 ENGINE OIL EOILT SOILT OILP MANIFOLD PRESSURE = 13.158  
 165.33 319.12 45.201  
 DYNO COND. TORQUE RPM CYL. BACK PRESSURE = 29.244  
 2.9451 582.18  
 INDUCTION AIR IAIRT1 IAIRT2 TAIRT1 TAIRT2  
 77.820 78.254 -56.457 74.888  
 ORIFICE AIR TEMP DELTAP DRFP FLOW  
 88.089 1.9939 53.574 1962.3  
 CELL TEMP. = 83.866 HEATER TEMP = 90.053 COOLER TEMP = 69.525

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NASA-LEWIS PRELIMINARY DATA 04/15/76 CADDEII REC 04/15/76 22:42:20.156 FAC SFX15 PGM C003 RDG 3459  
 LEANOUT 25 BTDC I & T 80 DEG HUM = 80 % NEUTRAL MODE = 2.0000 NO. SCANS = 4  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.100 RATED HP. = 160.00 HC RATIO = 2.1250  
 COMB. AIR TEMP PRESS CFM DRY FLOW VAPOR FLOW PRESS TOTAL  
 78.485 29.099 23.417 98.521 1.8006 14.299  
 COMB. FUEL TEMP PRESS DENSITY TURBO FLOW FLOW TRON FPIP  
 88.043 5.7133 44.439 11.558 10.006 6.1585  
 COOLING AIR TEMP UDEL-HOOD DEL-HOOD FLOW REL-HUM DEW-POINT  
 83.728 -0.064692 0.78807 0.00000 84.558 73.443  
 REL-HUM 1 2 HUMIDITY % H2O VAPOR CORRECTED HP  
 84.558 46.965 127.93 2.9377 1.1849  
 ENG. COND. F/A DRY F/A WET EQU. RATIO RPM-1 RPM-2 TORQUE BHP  
 0.10156 0.099739 1.5159 1197.1 1197.5 4.9588 1.1303  
 WET CORRECTION FACTOR = 0.84759 EXHAUST MOLE. WT. = 26.124 EXHAUST DENSITY = 0.067642 EXHAUST FLOW RATE = 1631.1  
 MEASURED CONC. PART PER MILLION WET PER CENT  
 HC PPM NOX PPM CO DRY CO2 DRY O2 DRY  
 17918. 9.3209 11.856 7.6919 0.75007  
 CORRECTED CONC. TO WET BASIS 10.049 6.5196 0.63576  
 EMISSION RATE HC NOX CO  
 1.0492 0.0018091 11.899  
 EMISSION MASS/MODE 0.19235 0.00033168 2.1816  
 EMISSION MASS/RATED HP 0.0012022 2.0730E-06 0.013635  
 MODE EMIS./STD. CYCLE % 63.273 0.13820 32.464  
 CAL. FUEL AIR RATIO = 0.10287 MEAS. FUEL AIR RATIO = 0.10156 DIFF MEAS.& CAL. F/A PERCENT = 1.2895  
 CYL TEMP DEG.F CYL-1 CYL-2 CYL-3 CYL-4  
 270.52 287.40 270.94 282.71  
 EXT GAS TEMP DEG.F EXT-1 EXT-2 EXT-3 EXT-4 SEXT-1 SEXT-2  
 1578.5 1055.1 -454.00 483.40 611.38 608.73  
 ENGINE OIL EOILT SOILT OILP MANIFOLD PRESSURE = 9.2708  
 163.24 396.75 55.190  
 DYAO COND. TORQUE RPM CYL.BACK PRESSURE = 29.008  
 -1.5392 1198.5  
 INDUCTION AIR IAIRT1 IAIRT2 TAIRT1 TAIRT2  
 78.198 78.485 -39.652 75.067  
 ORIFICE AIR TEMP DELTAP ORFP FLOW  
 88.349 1.3089 53.702 1602.0  
 CILL TEMP. = 84.244 HEATER TEMP = 89.410 COOLER TEMP = 70.758

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NASA-Lewis PRELIMINARY DATA 04/15/76 CADDEII REC 04/15/76 22:42:38.210 FAC SEX15 PGM C003 RDG 3460

LEANOUT 25 BTDC I & T 80 DEG HUM = 80 % NEUTRAL MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.100 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	78.519	29.103	23.922	100.59	1.8462	14.295

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	88.045	5.7114	44.439	11.822	10.222	6.1467

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT
	83.848	-0.055905	0.79983	0.00000	84.792	73.558

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	84.792	25.152	128.48	2.9502	1.0395

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10162	0.099789	1.5167	1196.9	1199.3	4.3504	0.99147

WET CORRECTION FACTOR = 0.84925 EXHAUST MOLE. WT. = 26.120 EXHAUST DENSITY = 0.067632 EXHAUST FLOW RATE = 1665.8

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	O2 DRY
	17450.	9.3789	11.832	7.6933
CORRECTED CONC. TO WET BASIS			10.048	6.5335
				0.66307

	HC	NOX	CO
EMISSION RATE	1.0436	0.0018591	12.152
EMISSION MASS/MODE	0.052178	9.2956E-05	0.60760
EMISSION MASS/RATED HP	0.00032611	5.8098E-07	0.0037975
MODE EMIS./STD. CYCLE %	17.164	0.38732	9.0416

CAL. FUEL AIR RATIO = 0.10241 MEAS. FUEL AIR RATIO = 0.10162 DIFF MEAS. & CAL. F/A PERCENT = 0.77247

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	270.38	286.92	270.56	281.93

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	2017.3	1056.5	-454.00	-386.59	605.16	602.74

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 9.2614
	163.03	186.43	55.281	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.389
	3.0531	1203.2	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	78.271	78.519	48.972	75.147

ORIFICE AIR	TFMP	DELTAP	ORFP	FLOW
	88.281	1.0119	53.359	1411.6

CELL TFMP. = 84.235 HEATER TEMP = 89.535 COOLER TEMP = 70.997

NASA-LFWIS PRELIMINARY DATA 04/15/76 CADDEII REC 04/15/76 22:50:36.163 FAC SEX15 PGM C003 RDG 3462  
 LEANOUT 25 BTDC I & T 80 DEG HUM = 80 % NEUTRAL MODE = 7.0000 NO. SCANS = 4  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.100 RATED HP. = 160.00 HC RATIO = 2.1250  

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	79.876	29.109	15.061	63.337	1.1583	14.293
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	89.059	5.7478	44.413	8.0296	6.4544	6.1626
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	83.750	-0.066076	0.78461	0.00000	80.802	73.449
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP	
	80.802	43.369	128.01	2.9396	0.36998	
ENG. COND.	F/A DRY	F/A WFT	EQU. RATIO	RPM-1	RPM-2	TORQUE
	0.10191	0.10008	1.5210	594.36	596.83	3.1149
						BHP
						0.35251
WET CORRECTION FACTOR = 0.87092		EXHAUST MOLE. WT. = 26.102		EXHAUST DENSITY = 0.067585		EXHAUST FLOW RATE = 1049.8
MEASURED CONC.	PART PER MILLION WET		PER CENT			
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	39778.	4.7517	9.9227	6.4816	3.6882	
CORRECTED CONC. TO WET BASIS			8.6419	5.6450	3.2122	
EMISSION RATE	HC	NOX	CO			
	1.4992	0.00059361	6.5864			
EMISSION MASS/MODE	0.024986	9.8934E-06	0.10977			
EMISSION MASS/RATED HP	0.00015616	6.1834E-08	0.00068608			
MODE EMIS./STD. CYCLE %	8.2191	0.0041223	1.6335			
CAL. FUEL AIR RATIO = 0.10141		MEAS. FUEL AIR RATIO = 0.10191		DIFF MEAS. & CAL. F/A PERCENT = -0.48219		
CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4		
	214.77	235.26	205.06	214.62		
EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	883.59	830.69	-454.00	651.99	454.23	452.45
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 12.718		
	151.78	219.49	47.175			
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.136			
	5.4275	591.73				
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2		
	79.534	79.876	73.382	75.078		
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW		
	89.506	1.2831	53.559	1584.8		
CELL TEMP. = 85.001	HEATER TEMP = 88.779		COOLER TEMP = 69.911			

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NASA-LEWIS		PRELIMINARY DATA		04/15/76		CADDEII		REC 04/15/76 22:58:24.800		FAC SEX15		PGM C003		RDG 3463	
LEANOUT 25 BTDC I & T 80 DEG HUM = 80 % 1 1/2 T OPEN MODE = 1.0000										NO. SCANS = 4					
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 29.100				RATED HP. = 160.00		HC RATIO = 2.1250			
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		80.681		29.098		15.288		64.292		1.1739		14.293			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		89.720		5.7324		44.422		8.6062		6.9719		6.1750			
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		85.603		-0.058465		0.86729		0.00000		78.590		73.406			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		78.590		54.333		127.81		2.9350		0.41261					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.10844		0.10650		1.6185		584.23		584.91		3.5316		0.39286	
WET CORRECTION FACTOR = 0.88854				EXHAUST MOLE. WT. = 25.698				EXHAUST DENSITY = 0.066539				EXHAUST FLOW RATE = 1088.6			
MEASURED CONC.		PART PER MILLION WET		PER CENT											
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		47637.		4.4317		10.330		5.5419		4.4657					
CORRECTED CONC. TO WET BASIS						9.1787		4.9242		3.9680					
EMISSION RATE		HC		NOX		CO									
		1.8618		0.00057412		7.2544									
EMISSION MASS/MODE		0.031030		9.5686E-06		0.12091									
EMISSION MASS/RATED HP		0.00019393		5.9804E-08		0.00075567									
MODE EMIS./STD. CYCLE %		10.207		0.0039869		1.7992									
CAL. FUEL AIR RATIO = 0.10526				MEAS. FUEL AIR RATIO = 0.10844				DIFF MEAS. & CAL. F/A PERCENT = -2.9314							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		305.15		325.17		316.10		338.97							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		1339.1		903.16		133.83		683.03		688.33		688.11			
ENGINE CIL		EOILT		SOILT		OILP		MANIFOLD PRESSURE = 14.015							
		162.82		326.56		45.204									
DYNO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.101									
		5.4545		575.98											
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
		80.295		80.681		-63.824		75.126							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		90.422		3.7165		53.577		2636.8							
CELL TEMP. = 87.573				HEATER TEMP = 88.511				COOLER TEMP = 70.569							

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NASA-LEWIS		PRELIMINARY DATA		04/15/76		CADDEII		REC 04/15/76 23:00:47.660		FAC SEX15		PGM C003		RDG 3464	
LEANOUT 25 BTDC I & T 80 DEG HUM = 80 % 1 1/2 T OPEN MODE = 2.0000 NO. SCANS = 5															
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 29.100				RATED HP = 160.00				HC RATIO = 2.1250	
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		77.838		29.098		24.856		104.54		11.9116		14.296			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		86.768		5.7030		44.472		12.752		11.119		6.1497			
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		83.014		-0.076108		0.80730		0.00000		86.410		73.453			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		86.410		52.321		128.00		2.9393		1.0673					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.10636		0.10445		1.5875		1197.8		1198.6		4.4671		1.0188	
WET CORRECTION FACTOR = 0.85836				EXHAUST MOLE. WT. = 25.823				EXHAUST DENSITY = 0.066863				EXHAUST FLOW RATE = 1758.4			
MEASURED CONC.		PART PER MILLION WET				PER CENT									
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		20460.		7.3457		12.205		7.2878		0.88649					
CORRECTED CONC. TO WET BASIS						10.476		6.2556		0.76092					
		HC		NOX		CO									
EMISSION RATE		1.2915		0.0015371		13.374									
EMISSION MASS/MODE		0.23678		0.00028179		2.4519									
EMISSION MASS/RATED HP		0.0014799		1.7612E-06		0.015324									
MODE EMIS./STD. CYCLE %		77.889		0.11741		36.486									
CAL. FUEL AIR RATIO = 0.10535				MEAS. FUEL AIR RATIO = 0.10636				DIFF MEAS. & CAL. F/A PERCENT = -0.95232							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		272.83		292.97		279.19		291.89							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		1346.3		1077.8		74.243		517.31		633.17		631.35			
ENGINE OIL		EOILT		SOILT		OILP		MANIFOLD PRESSURE = 9.6907							
		159.34		339.07		55.093									
DYNO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 28.980									
		-1.0729		1209.2											
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
		77.502		77.838		9.4329		75.132							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		87.722		2.9741		53.591		2370.5							
CELL TEMP. = 84.612				HEATER TEMP = 88.442				COOLER TEMP = 70.123							

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NASA-LEWIS		PRELIMINARY DATA		04/15/76		CADDEII		REC 04/15/76 23:01:09.319		FAC SEX15		PGM C003		RDG 3465			
LEANOUT 25 BTDC. I & T 80 DEG HUM = 80 % 1 1/2 T OPEN MODE = 6.0000																NO. SCANS = 5	
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 29.100				RATED HP. = 160.00				HC RATIO = 2.1250			
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL					
		77.811		29.104		25.058		105.41		1.9239		14.298					
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP					
		86.716		5.7015		44.473		12.852		11.185		6.1455					
COOLING AIR		TEMP		UDEL-HOOD		DFL-HOOD		FLOW		REL-HUM		DEW-POINT					
		82.882		-0.068359		0.83702		0.00000		86.340		73.403					
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP							
		86.340		3.2883		127.76		2.9337		0.82390							
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP			
		0.10611		0.10421		1.5837		1200.1		1200.0		3.4420		0.78652			
WET CORRECTION FACTOR = 0.85795				EXHAUST MOLE. WT. = 25.839				EXHAUST DENSITY = 0.066904				EXHAUST FLOW RATE = 1771.5					
MEASURED CONC.		PART PER MILLION WET				PER CENT											
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY							
		19529.		7.5187		12.252		7.3506		0.82628							
CORRECTED CONC. TO WET BASIS						10.511		6.3065		0.70891							
		HC		NOX		CO											
EMISSION RATE		1.2421		0.0015851		13.519											
EMISSION MASS/MODE		0.062103		7.9253E-05		0.67594											
EMISSION MASS/RATED HP		0.00038815		4.9533E-07		0.0042246											
MODE FMIS./STD. CYCLE %		20.429		0.033022		10.059											
CAL. FUEL AIR RATIO = 0.10498				MEAS. FUEL AIR RATIO = 0.10611				DIFF MEAS. & CAL. F/A PERCENT = -1.0574									
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4									
		271.73		291.52		277.20		289.81									
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2					
		1913.0		1077.3		44.195		-91.039		626.74		624.72					
ENGINE OIL		EOILT		SOILT		OILP		MANIFOLD PRESSURE = 9.6622									
		159.19		-6.7747		55.073											
DYNO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.234											
		3.5716		1203.7													
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2									
		77.484		77.811		91.219		75.135									
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW									
		87.713		2.0504		53.631		1989.0									
CELL TEMP. = 84.586				HEATER TEMP = 88.456				COOLER TEMP = 70.765									

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NASA-LEWIS	PRELIMINARY DATA	04/15/76	CADDEII	REC 04/15/76 23:07:40.658	FAC SEX15	PGM C003	RDG 3466
LEANOUT 25 BTDC I & T 80 DEG HUM = 80 % 1 1/2 T OPEN MODE = 7.0000				NO. SCANS = 4			
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.100		RATED HP. = 160.00		HC RATIO = 2.1250
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	78.960	29.093	15.963	67.116	1.2334	14.293	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	88.065	5.7336	44.438	8.6073	7.0957	6.1686	
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	83.003	-0.047741	0.80363	0.00000	83.668	73.593	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	83.668	66.114	128.64	2.9541	0.32055		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10572	0.10382	1.5780	611.46	611.24	2.6253	0.30564
WET CORRECTION FACTOR = 0.87884		EXHAUST MOLE. WT. = 25.863		EXHAUST DENSITY = 0.066964		EXHAUST FLOW RATE = 1126.6	
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	42314.	4.6380	10.315	6.1177	3.8515		
CORRECTED CONC. TO WET BASIS			9.0651	5.3764	3.3048		
	HC	NOX	CO				
EMISSION RATE	1.7115	0.00062181	7.4147				
EMISSION MASS/MODE	0.028524	1.0364E-05	0.12358				
EMISSION MASS/RATED HP	0.00017828	6.4772E-08	0.00077236				
MODE EMIS./STD. CYCLE %	9.3830	0.0043181	1.8390				
CAL. FUEL AIR RATIO = 0.10361		MEAS. FUEL AIR RATIO = 0.10572		DIFF MEAS. & CAL. F/A PERCENT = -2.0008			
CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4			
	222.29	245.47	221.28	235.18			
EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	1132.1	885.23	-171.97	628.01	498.44	497.12	
ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 13.121			
	152.18	274.83	47.220				
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.113				
	-0.0090008	611.01					
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2			
	78.530	78.960	-22.059	75.135			
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW			
	88.371	1.3064	52.744	1600.4			
CELL TEMP. =	85.592	HEATER TEMP = 88.269		COOLER TEMP = 69.989			

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NASA-LEWIS PRELIMINARY DATA 04/16/76 CADDELL REC 04/16/76 13:51:27.838 FAC SEX15 PGM C003 RDG 3467

LEANOUT 25 BTDC TO CL APP 80 DEG HUM=80% MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP.= 160.00 HC RATIO= 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	81.122	29.249	213.87	932.45	16.101	14.835

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	91.273	5.4245	44.356	82.053	78.557	5.9418

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	82.600	3.0582	3.9961	10065.	76.157	72.898

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	76.157	82.336	120.87	2.7757	153.29

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.084248	0.082818	1.2574	2697.1	2698.0	274.63	141.03

WET CORRECTION FACTOR = 0.83704 EXHAUST MOLE. WT. = 27.347 EXHAUST DENSITY = 0.070809 EXHAUST FLOW RATE = 14505.

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	O2 DRY
	1683.1	149.64	8.2568	10.005
CORRECTED CONC. TO WET BASIS			8.3744	0.040734

	HC	NOX	CO
EMISSION RATE	0.87645	0.25831	72.870
EMISSION MASS/MODE	0.0043822	0.0012915	0.36435
EMISSION MASS/RATED HP	2.7389E-05	8.0721E-06	0.0022772
MODE EMIS./STD. CYCLE %	1.4415	0.53814	5.4219

CAL. FUEL AIR RATIO = 0.085892 MEAS. FUEL AIR RATIO = 0.084248 DIFF MEAS. & CAL. F/A PERCENT = 1.9524

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	396.48	419.54	389.78	404.74

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1108.0	1450.1	-454.00	1072.0	1289.5	1282.1

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.307
	171.43	220.79	73.947	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.422
	278.84	2647.0	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	80.866	81.122	-30.338	76.534

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	91.230	2.0144	54.041	1966.2

CELL TEMP. = 90.629 HEATER TEMP = 91.732 COOLER TEMP = 71.568

NASA-LEWIS PRELIMINARY DATA 04/16/76 CADDEII REC 04/16/76 13:55:19.289 FAC SEX15 PGM C003 RDG 3468  
 LEANOUT 25 BTDC TO CL APP 80 DEG HUM=80% MODE = 4.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BARGMETRIC PRESSURE = 29.230 RATED ~~HP~~ = 160.00 HC RATIO= 2.1250  
 COMB. AIR TEMP PRESS CFM DRY FLOW VAPOR FLOW PRESS TOTAL  
 78.863 29.255 190.23 822.20 14.170 14.711  
 COMB. FUEL TEMP PRESS DENSITY TURBO FLOW FLOW TRON FPIP  
 89.530 5.4764 44.401 70.873 68.320 6.0888  
 COOLING AIR TEMP UDEL-HOOD DEL-HOOD FLOW REL-HUM DEW-POINT  
 80.293 3.0521 3.8993 10054. 81.156 72.593  
 REL-HUM 1 2 HUMIDITY % H2O VAPOR CORRECTED HP  
 81.156 51.923 120.64 2.7703 127.18  
 ENG. COND. F/A DRY F/A WET EQU. RATIO RPM-1 RPM-2 TORQUE BHP  
 0.083094 0.081686 1.2402 2437.1 2437.4 259.69 120.51  
 WET CORRECTION FACTOR = 0.83067 EXHAUST MILE. WT. = 27.436 EXHAUST DENSITY = 0.071040 EXHAUST FLOW RATE = 12735.  
 MEASURED CONC. PART PER MILLION WET PER CENT  
 HC PPM NOX PPM CO DRY CO2 DRY O2 DRY  
 1852.5 338.36 8.4885 9.8922 0.081188  
 CORRECTED CONC. TO WET BASIS 7.0512 8.2172 0.067440  
 EMISSION RATE HC NOX CO  
 0.84693 0.51278 65.192  
 EMISSION MASS/MODE 0.070577 0.242731 5.4327  
 EMISSION MASS/RATED HP 0.00044111 0.00026707 0.033954  
 MODE EMIS./STD. CYCLE % 23.216 17.805 80.843  
 CAL. FUEL AIR RATIO = 0.086423 MEAS. FUEL AIR RATIO = 0.083094 DIFF MEAS. & CAL. F/A PERCENT = 4.0072  
 CYL TEMP DEG.F CYL-1 CYL-2 CYL-3 CYL-4  
 349.91 378.51 404.61 411.02  
 EXT GAS TEMP DEG.F EXT-1 EXT-2 EXT-3 EXT-4 SEXT-1 SEXT-2  
 455.20 1294.2 121.65 1709.6 1255.9 1252.5  
 ENGINE OIL FOILT SOILT OILP MANIFOLD PRESSURE = 27.826  
 186.02 198.00 73.699  
 DYNO COND. TORQUE RPM CYL. BACK PRESSURE = 29.283  
 251.75 2350.4  
 INDUCTION AIR IAIRT1 IAIRT2 TAIRT1 TAIRT2  
 78.572 78.863 -67.856 76.718  
 ORIFICE AIR TFMP DELTAP ORFP FLOW  
 88.806 1.0159 54.120 1413.7  
 CIL TEMP. = 88.334 HEATFR TFMP = 90.530 COOLER TEMP = 70.836

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NASA-LEW:S PRELIMINARY DATA 04/16/76 CADDEII REC 04/16/76 14:01:27.825 FAC SEX15 PGM C003 RDG 3469  
 LEANOUT 25 BTDC TO CL APP 80 DEG HUM=80% MODE = 5.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250  
 COMB. AIR TEMP 79.764 PRESS 29.222 CEM 112.88 DRY FLOW 480.59 VAPOR FLOW 8.2241 PRESS TOTAL 14.486  
 COMB. FUEL TEMP 91.987 PRESS 5.5914 DENSITY 44.338 TURBO FLOW 44.165 FLOW TRON 41.902 FPIP 6.1158  
 COOLING AIR TEMP 81.051 UDEL-HOOD 3.0164 DEL-HOOD 3.8981 FLOW 9938.7 REL-HUM 77.056 DEW-POINT 71.933  
 PEL-HUM 1 2 HUMIDITY % H2O VAPOR CORRECTED HP  
 77.056 56.616 119.79 2.7508 69.346  
 ENG. COND. F/A DRY F/A WET EQU. RATIO RPM-1 RPM-2 TORQUE BHP  
 0.087190 0.085723 1.3013 2350.4 2351.3 146.01 65.344  
 WET CORRECTION FACTOR = 0.84427 EXHAUST MJLF. WT. = 27.124 EXHAUST DENSITY = 0.070231 EXHAUST FLOW RATE = 7556.7  
 MEASURED CONC. PART PER MILLION WET PER CENT  
 HC PPM NOX PPM CO DRY CO2 DRY O2 DRY  
 2029.0 127.23 8.8470 9.6366 0.13375  
 CORRECTED CONC. TO WET BASIS 7.4693 8.1359 0.11292  
 EMISSION RATE HC NOX CO  
 0.55044 0.11441 40.977  
 EMISSION MASS/MODE 0.055044 0.311441 4.0977  
 EMISSION MASS/RATED HP 0.00034402 7.1508E-05 0.025611  
 MODE EMIS./STD. CYCLE % 13.106 4.7672 60.978  
 CAL. FUEL AIR RATIO = 0.087326 MEAS. FUEL AIR RATIO = 0.087190 DIFF MEAS. & CAL. F/A PERCENT = 0.15655  
 CYL TEMP DEG.F CYL-1 CYL-2 CYL-3 CYL-4  
 322.81 333.90 332.01 327.83  
 EXT GAS TEMP DEG.F EXT-1 EXT-2 EXT-3 EXT-4 SEXT-1 SEXT-2  
 1055.4 1348.5 -146.81 1512.7 1098.1 1098.5  
 ENGINE OIL EOILT SOILT OILP MANIFOLD PRESSURE = 19.319  
 188.11 149.83 72.579  
 DYNO COND. TORQUE RPM CYL. BACK PRESSURE = 29.296  
 139.04 2301.2  
 INDUCTION AIR IAIRT1 IAIRT2 TAIRT1 TAIRT2  
 79.464 79.764 -46.297 76.659  
 ORIFICE AIR TEMP DELTAP ORFP FLOW  
 89.408 2.0112 54.280 1967.9  
 CELL TEMP. = 89.111 HEATER TEMP = 90.053 COOLER TEMP = 71.460

1.9%

NASA-LEWIS PRELIMINARY DATA 04/16/76 CADDEII REC 04/16/76 14:07:32.542 FAC SEX15 PGM C003 RDG 3470  
 LEANOUT 25 BTDC TO CL APP 80 DEG HUM=80% MODE = 3.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250  
 COMB. AIR TEMP PRESS CFM DRY FLOW VAPOR FLOW PRESS TOTAL  
 80.020 29.213 213.12 930.08 15.944 14.840  
 COMB. FUEL TEMP PRESS DENSITY TURBO FLOW FLOW TRON FPIP  
 91.491 5.4428 44.350 80.412 77.417 6.0330  
 COOLING AIR TEMP UDEL-HOOD DEL-HOOD FLOW REL-HUM DEW-POINT  
 82.521 3.0858 3.9734 10116. 78.415 72.698  
 REL-HUM 1 2 HUMIDITY % H2O VAPOR CORRECTED HP  
 78.415 38.252 120.00 2.7556 152.88  
 ENG. COND. F/A DRY F/A WET EQU. RATIO RPM-1 RPM-2 TORQUE BHP  
 0.083236 0.081833 1.2423 2700.3 2700.8 273.54 140.64  
 WET CORRECTION FACTOR = 0.83393 EXHAUST MOLE. WT. = 27.425 EXHAUST DENSITY = 0.071011 EXHAUST FLOW RATE = 14412.  
 MEASURED CONC. PART PER MILLION WET PER CENT  
 HC PPM NOX PPM CO DRY CO2 DRY O2 DRY  
 1643.2 154.48 8.1863 10.056 0.049845  
 CORRECTED CONC. TO WET BASIS 6.8268 8.3864 0.041567  
 EMISSION RATE HC NOX CO  
 0.85018 0.26494 71.432  
 EMISSION MASS/MODE 0.0042509 0.0013247 0.35716  
 EMISSION MASS/RATED HP 2.6568E-05 8.2793E-06 0.0022322  
 MODE EMISS./STD. CYCLE % 1.3983 0.55195 5.3149  
 CAL. FUEL AIR RATIO = 0.085652 MEAS. FUEL AIR RATIO = 0.083236 DIFF MEAS. & CAL. F/A PERCENT = 2.9025  
 CYL TEMP DEG.F CYL-1 CYL-2 CYL-3 CYL-4  
 400.82 429.04 396.00 410.80  
 EXT GAS TEMP DEG.F EXT-1 EXT-2 EXT-3 EXT-4 SEXT-1 SEXT-2  
 646.90 1453.8 -263.71 1541.6 1311.8 1306.7  
 ENGINE OIL EQILT SOILT OILP MANIFOLD PRESSURE = 28.312  
 189.02 210.46 74.227  
 DYN COND. TORQUE RPM CYL BACK PRESSURE = 29.380  
 279.48 2638.9  
 INDUCTION AIR IAIRT1 IAIRT2 TAIRT1 TAIRT2  
 79.711 80.020 -130.22 76.303  
 ORIFICE AIR TEMP DELTAP ORFP FLOW  
 90.167 2.0205 53.881 1970.9  
 CELL TEMP. = 91.491 HEATER TEMP. = 89.804 COOLER TEMP. = 70.712

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NASA-LEWIS		PRELIMINARY DATA		04/16/76		CADDEII		RFC 04/16/76 14:11:05.432		FAC SEX15		PGM C003		RDG 3471	
LEANOUT 25 BTDC TO CL APP 80 DEG HUM=80%								MODE = 4.0000		NO. SCANS = 5					
ENGINE TIMING = 25.000				DEG. °		BAROMETRIC PRESSURE = 29.230				RATED HP. = 160.00		HC RATIO= 2.1250			
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		80.566		29.206		189.97		821.82		14.107		14.708			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		92.387		5.5208		44.327		71.485		69.256		6.0372			
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		82.908		3.0496		3.8854		10050.		76.442		72.473			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		76.442		39.038		120.16		2.7592		126.72					
ENG. COND.		F/A DRY		F/A WFT		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.084271		0.082849		1.2578		2431.7		2431.0		258.89		119.87	
WET CORRECTION FACTOR = 0.83419				EXHAUST MOLE. WT. = 27.345				EXHAUST DENSITY = 0.070804				EXHAUST FLOW RATE = 12784.			
MEASURED CONC.		PART PER MILLION WET		PER CENT											
		HC PPM		NOX PPM		CO DRY		CO2 DRY		C2 DRY					
		1853.3		325.69		8.6340		9.8518		0.091209					
CORRECTED CONC. TO WET BASIS						7.2924		8.2183		0.076085					
		HC		NOX		CO									
EMISSION RATE		0.85058		0.49549		66.848									
EMISSION MASS/MODE		0.070882		0.041291		5.5707									
EMISSION MASS/RATED HP		0.00044301		0.00025807		0.034817									
MODE EMIS./STD. CYCLE %		23.316		17.204		82.897									
CAL. FUEL AIR RATIO = 0.086695				MEAS. FUEL AIR RATIO = 0.084271				DIFF MEAS. & CAL. F/A PERCENT = 2.8757							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		354.57		383.67		409.14		414.43							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		771.10		1292.2		94.681		1765.9		1261.0		1258.9			
ENGINE OIL		OILT		SOILT		OILP		MANIFOLD PRESSURE = 27.849							
		189.37		160.49		72.911									
DYNO COND.		TORQUE		RPM		CYL BACK PRESSURE = 29.477									
		250.12		2357.5											
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
		80.222		80.566		-52.248		76.197							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		90.794		2.0347		54.275		1976.3							
CELL TEMP. = 92.196				HEATER TEMP = 89.756				COOLER TEMP = 71.746							

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NASA-LEWIS PRELIMINARY DATA 04/16/76 CADDEII REC 04/16/76 14:16:17.222 FAC SEX15 PGM C003 RDG 3472

LEANOUT 25 BTDC TO CL APP 80 DEG HUM=80% MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	81.518	29.233	112.48	478.88	8.2439	14.480

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	94.394	5.6208	44.276	44.033	41.764	6.0696

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	83.357	2.9915	3.9532	9942.4	73.166	72.093

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	73.166	66.263	120.50	2.7672	69.234

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.087212	0.085736	1.3017	2350.6	2351.8	145.44	65.092

WET CORRECTION FACTOR = 0.84357 EXHAUST MOLE. WT. = 27.122 EXHAUST DENSITY = 0.070227 EXHAUST FLOW RATE = 7531.2

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	NOX PPM	CO DRY
1928.8	108.67	8.8449
CORRECTED CONC. TO WET BASIS		CO DRY
		0.088289
		0.074478

	HC	NOX	CO
EMISSION RATE	0.52149	0.097392	40.796
EMISSION MASS/MODE	0.052149	0.0097392	4.0796
EMISSION MASS/PATED HP	0.00032593	6.0870E-05	0.025497
MODE EMIS./STD. CYCLE %	17.154	4.0580	60.708

CAL. FUEL AIR RATIO = 0.087342 MEAS. FUEL AIR RATIO = 0.087212 DIFF MEAS. & CAL. F/A PERCENT = 0.14933

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	337.45	355.99	355.64	362.84

EXT GAS TEMP DEG.F	FXT-1	EXT-2	FXT-3	EXT-4	SEXT-1	SEXT-2
	1488.3	1349.4	88.302	1601.5	1143.2	1144.9

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	188.27	201.92	72.479	19.328

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE
	151.20	2314.5	29.271

INDUCTION AIR	IAIPT1	IAIPT2	TAIRT1	TAIPT2
	81.192	81.518	-56.212	76.354

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	91.639	2.9917	54.205	2368.8

CELL TEMP. = 92.570 HEATER TEMP = 89.673 COOLER TEMP = 71.220

NASA-LEWIS PRELIMINARY DATA 04/16/76 CADDEII RFC 04/16/76 14:25:05.834 FAC SEX15 PGM C003 RDG 3473

LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=80% MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	78.881	29.242	212.78	928.87	16.136	14.843

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	91.125	5.4593	44.360	79.311	75.427	6.0534

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	81.844	3.0117	3.8923	9980.0	82.473	73.088

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	82.473	-40.486	121.60	2.7924	152.31

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.081204	0.079817	1.2120	2696.8	2697.8	273.43	140.40

WET CORRECTION FACTOR = 0.83115 EXHAUST MOLE. WT. = 27.585 EXHAUST DENSITY = 0.071423 EXHAUST FLOW RATE = 14287.

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1535.6	166.26	7.5209	10.451	0.031183
CORRECTED CONC. TO WET BASIS			6.2510	8.6864	0.025918

	HC	NOX	CO
EMISSION RATE	0.78759	0.28266	64.838
EMISSION MASS/MODE	0.0039380	0.0014133	0.32419
EMISSION MASS/RATED HP	2.4612E-05	8.8332E-06	0.0020262
MODE EMISS./STD. CYCLE %	1.2954	0.58888	4.8242

CAL. FUEL AIR RATIO = 0.083957 MEAS. FUEL AIR RATIO = 0.081204 DIFF MEAS. & CAL. F/A PERCENT = 3.3908

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	409.53	437.30	404.21	421.38

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1252.8	1467.4	187.85	1692.7	1340.6	1337.0

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.390
	189.46	214.40	73.523	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.379
	278.22	2611.0	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	78.572	78.881	-41.332	76.068

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	89.739	2.0552	53.258	1987.5

CFL TEMP. = 92.231 HEATER TEMP = 91.138 COOLER TEMP = 71.086

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NASA-LE-15 PRELIMINARY DATA 04/16/76 CADDEII REC 04/16/76 14:29:21.668 FAC SEX15 PGM C003 RDG 3474

LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=80% MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	79.720	29.172	187.45	811.47	14.092	14.721

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	92.083	5.5217	44.335	67.857	66.058	6.0216

COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	82.293	3.0504	3.9219	10051.	79.550	72.833

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	79.550	42.786	121.56	2.7914	125.39

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.081405	0.080015	1.2150	2428.3	2428.1	256.63	118.66

WFT CORRECTION FACTOR = 0.83211 EXHAUST MOLE. WT. = 27.559 EXHAUST DENSITY = 0.071382 EXHAUST FLOW RATE = 12490.

MEASURED CONC.	PART PER MILLION WFT		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1738.2	436.76	7.5542	10.474	0.091989
CORRECTED CONC. TO WET BASIS			6.2860	8.7155	0.076545

	HC	NOX	CO
EMISSION RATE	0.77943	0.64920	57.003
EMISSION MASS/MODE	0.064952	0.054100	4.7502
EMISSION MASS/RATED HP	0.00040595	0.00033813	0.029689
MODE EMIS./STD. CYCLE %	21.366	22.542	70.688

CAL. FUEL AIR RATIO = 0.083867 MEAS. FUEL AIR RATIO = 0.081405 DIFF MEAS. & CAL. F/A PERCENT = 3.0247

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	359.74	383.05	411.54	414.18

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1626.6	1306.3	342.32	1881.7	1283.0	1281.8

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 27.727
	188.76	250.79	72.783	

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.465
	240.27	2366.5	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	79.367	79.720	79.218	76.149

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	89.980	2.0497	52.130	1986.4

CFLT TEMP. = 92.213 HEATER TEMP = 89.929 COOLER TEMP = 73.047

ORIGINAL PAGE IS  
OF POOR QUALITY

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NASA-LEWIS		PRELIMINARY DATA		04/16/76	CADDEII	REC 04/16/76 14:32:49.665		FAC SEX15	PGM C003	RDG 3475	
LEANOUT 25 BTDC TO CL APP		80 DEG. HUM=80%		MODE = 5.0000		NO. SCANS = 5					
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.230		RATED HP. = 160.00		HC RATIO = 2.1250				
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL					
	80.610	29.227	113.09	481.68	8.1581	14.484					
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP					
	94.064	5.6540	44.284	43.102	40.744	6.1044					
COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT					
	82.495	2.9740	3.7611	9909.9	74.195	71.633					
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP						
	74.195	73.827	118.56	2.7225	68.758						
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE		BHP			
	0.084588	0.083179	1.2625	2357.4	2357.0	144.23		64.739			
WET CORRECTION FACTOR = 0.84070		EXHAUST MOLE. WT. = 27.321		EXHAUST DENSITY = 0.070741		EXHAUST FLOW RATE = 7500.3					
MEASURED CONC.	PART PER MILLION WET		PER CENT		670						
	HC PPM	NOX PPM	CO DRY	CO2 DRY							O2 DRY
	1857.6	143.84	8.0644	10.192	0.10463						
CORRECTED CONC. TO WET BASIS			6.7797	8.5584	0.087963						
EMISSION RATE	HC	NOX	CO								
	0.50017	0.12839	36.917								
	0.050017	0.012839	3.6917								
	0.00031261	8.0241E-05	0.023073								
MODE EMIS./STD. CYCLE %		16.453	5.3494	54.936							
CAL. FUEL AIR RATIO = 0.085143		MEAS. FUEL AIR RATIO = 0.084588		DIFF MEAS. & CAL. F/A PERCENT = 0.65708							
CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4							
	332.34	344.23	345.79	344.94							
EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2					
	1422.9	1365.6	337.69	1665.6	1145.4	1147.2					
ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 19.415							
	187.82	204.58	72.287								
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.230								
	143.86	2296.1									
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2							
	80.302	80.610	-42.452	76.498							
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW							
	91.212	1.9985	56.487	1958.8							
CELL TEMP. = 92.370		HEATER TEMP = 90.274		COOLER TEMP = 73.902							

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NASA-LEWIS PRELIMINARY DATA 04/16/76 CADDEII REC 04/16/76 14:38:47.496 FAC SEX15 PGM C003 RDG 3476  
 LEANOUT 25 BTUC TO CL APP 80 DEG. HUN-30% MODJ = 3.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BARMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250  
 COMB. AIR TEMP 80.857 PRESS 29.196 CFM 213.09 DRY FLOW 29.47 VAPOR FLOW 16.395 PRESS TOTAL 14.840  
 COMB. FUEL TEMP 93.257 PRESS 5.4638 DENSITY 44.305 TURBO FLOW 80.491 FLOW TRON 77.414 FPIP 6.0372  
 COOLING AIR TEMP 83.875 UDEL-HOOD 3.0604 DEL-HOOD 3.8782 FLOW 10069. REL-HUM 78.448 DEW-POINT 73.523  
 REL-HUM 1 78.448 2 -18.102 HUMIDITY 123.48 % H2O VAPOR CORRECTED HP 2.8354 153.36  
 ENG. COND. F/A DRY 0.083288 F/A WET 0.081844 EQU. RATIO 1.2431 RPM-1 2701.6 RPM-2 2701.8 TORQUE 273.59 BHP 140.74  
 WET CORRECTION FACTOR = 0.84033 EXHAUST MOLE. WT. = 27.421 EXHAUST DENSITY = 0.071001 EXHAUST FLOW RATE = 14412.  
 MEASURED CONC. PART PER MILLION WET PER CENT  
 HC PPM 1535.2 NOX PPM 190.93 CO DRY 7.4413 CO2 DRY 10.563 O2 DRY 0.068367  
 CORRECTED CONC. TO WET BASIS 6.2532 8.8768 0.057451  
 EMISSION RATE HC 0.79429 NOX 0.32745 CO 65.429  
 EMISSION MASS/MODE 0.0039714 0.0016373 0.32714  
 EMISSION MASS/RATED HP 2.4821E-05 1.0233E-05 0.0020446  
 MODE EMIS./STD. CYCLE % 1.3064 0.58220 4.8682  
 CAL. FUEL AIR RATIO = 0.083523 MEAS. FUEL AIR RATIO = 0.083288 DIFF MEAS. & CAL. F/A PERCENT = 0.28251  
 CYL TEMP DEG.F CYL-1 439.03 CYL-2 427.69 CYL-3 404.98 CYL-4 417.67  
 EXT GAS TEMP DEG.F EXT-1 422.61 EXT-2 1468.5 EXT-3 124.87 EXT-4 1797.9 SEXT-1 1330.9 SEXT-2 1326.5  
 ENGINE OIL EOILT 189.52 SOILT 219.09 OILP 73.419 MANIFOLD PRESSURE = 28.343  
 DYND COND. TORQUE 274.63 RPM 2639.9 CYL. BACK PRESSURE = 29.406  
 INDUCTION AIR IAI RT1 80.513 IAI RT2 80.857 TAI RT1 -72.176 TAI RT2 76.167  
 ORIFICE AIR TEMP 91.395 DELTAP 2.0313 ORFP 51.365 FLOW 1973.6  
 CELL TEMP. = 94.203 HEATER TEMP = 89.777 COOLER TEMP = 71.755

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NASA-LEWIS PRELIMINARY DATA 04/16/76 CADDEII REC 04/16/76 14:41:41.951 FAC SEX15 PGM C003 RDG 3477

LEANOUT 25 BTDC TO CL APP 80 DEG. HUM=80% MCDE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATE HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	80.337	29.234	188.30	812.79	14.602	14.689

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	93.013	5.4938	44.311	67.824	65.869	6.0825

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	83.084	3.0322	3.8270	10017.	80.396	73.748

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	80.396	54.425	125.75	2.8877	126.65

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.081040	0.079610	1.2095	2427.7	2428.9	258.88	119.67

WET CORRECTION FACTOR = 0.82752 EXHAUST MOLE. WT. = 27.598 EXHAUST DENSITY = 0.071457 EXHAUST FLOW RATE = 12500.

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1740.2	436.90	7.7640	10.441	0.090549
CORRECTED CONC. TO WET BASIS			6.4249	8.6405	0.074931

	HC	NOX	CO
EMISSION RATE	0.78094	0.54993	58.309
EMISSION MASS/MODE	0.065079	0.054161	4.8591
EMISSION MASS/RATED HP	0.00040674	0.00033850	0.030369
MODE EMISS./STD. CYCLE %	21.407	22.567	72.308

CAL. FUEL AIR RATIO = 0.084285 MEAS. FUEL AIR RATIO = 0.081040 DIFF MEAS. & CAL. F/A PERCENT = 4.0041

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	363.60	390.94	410.55	414.74

EXT GAS TEMP DEG.F	FXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	909.49	1306.4	402.78	1854.6	1279.0	1277.0

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 27.655
	188.99	215.28	72.807	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.389
	263.49	2363.6	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	79.993	80.337	-32.022	76.022

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	92.344	3.0082	51.405	2373.6

CFLT TEMP. = 93.682 HEATER TEMP = 92.678 COOLER TEMP = 73.083

NASA-LEWIS PRELIMINARY DATA 04/16/76 CADDEII REC 04/16/76 14:44:40.951 FAC SEX15 PGM C003 RDG 3+78

LEANOUT 25 RTDC TO CL APP 80 DEG. HUM=80% MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	78.589	29.235	113.10	481.82	8.3712	14.485

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	92.396	5.6094	44.327	42.868	40.810	6.1155

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	PEL-HUM	DEW-POINT
	80.619	2.9508	3.7213	9866.4	61.270	72.368

RFL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	81.270	73.405	121.62	2.7927	70.323

ENG. COND.	F/A DRY	F/A WFT	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.084699	0.083253	1.2642	2357.0	2356.7	147.91	66.336

WET CORRECTION FACTOR = 0.84010 EXHAUST MOLE. WT. = 27.313 EXHAUST DENSITY = 0.070719 EXHAUST FLOW RATE = 7508.7

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1869.5	142.38	8.0878	10.229	0.099250
CORRECTED CONC. TO WET BASIS			6.7345	8.5932	0.083379

	HC	NOX	CO
EMISSION RATE	0.50394	0.12722	37.039
EMISSION MASS/MODE	0.050394	0.012722	3.7039
EMISSION MASS/RATED HP	0.00031496	7.9515E-05	0.023149
MODE EMISS./STD. CYCLE %	16.577	5.3010	55.118

CAL. FUEL AIR RATIO = 0.085159 MEAS. FUEL AIR RATIO = 0.084699 DIFF MEAS. & CAL. F/A PERCENT = 0.54327

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	333.57	345.57	347.09	349.15

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	728.40	1367.4	298.69	1720.6	1148.5	1150.0

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	189.18	158.86	72.499	19.457

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	140.70	2306.9	29.216

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	78.236	78.589	-4.1260	76.084

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	89.390	3.0186	53.249	2383.8

CELL TEMP. = 91.160 HEATER TEMP = 90.226 COOLER TEMP = 72.396

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NASA-Lewis PRELIMINARY DATA 05/05/76 CADDIT REC 04/16/76 14:55:15.476 FAC SEX15 PGM C003 RDG 3479

LEANOUT 25 RTDC TO CL APP 80 DEG. HUM= 80% MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO= 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	79.437	29.245	212.72	928.62	16.022	14.834

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	92.849	5.4746	44.316	75.353	72.982	6.0102

COOLING AIR	TEMP	WEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	82.600	3.103P	4.0016	10149.	80.396	72.873

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	80.396	-60.390	120.77	2.7734	153.77

ENG. COND.	F/A DRY	F/A WET	EOU. RATIO	RPM-1	RPM-2	TORQUE	RHP
	0.078592	0.077259	1.1730	2703.2	2705.2	275.35	141.72

WET CORRECTION FACTOR = 0.83215 EXHAUST MOLE. WT. = 27.794 EXHAUST DENSITY = 0.071965 EXHAUST FLOW RATE = 14140.

MEASURED CONC.	PART PER MILLION WET			PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1414.3	306.82	6.2603	11.276	0.075207
CORRECTED CONC. TO WET BASIS			5.2095	9.3829	0.062584

	HC	NOX	CO
EMISSION RATE	0.71798	0.51629	53.481
EMISSION MASS/MODE	0.0035899	0.0025815	0.26740
EMISSION MASS/RATED HP	2.2437E-05	1.6134E-05	0.0016713
MODE EMIS./STD. CYCLE *	1.1809	1.0756	3.9792

CAL. FUEL AIR RATIO = 0.080566 MEAS. FUEL AIR RATIO = 0.078592 DIFF MEAS. & CAL. F/A PERCENT = 2.5117

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	412.95	430.60	414.65	425.23

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1473.3	1488.1	229.31	1922.8	1354.6	1349.6

ENGINE OIL	EQILT	SOILT	OILP	MANIFOLD PRESSURE =
	159.21	153.82	73.795	28.343

DYND COND.	TORQUE	RPM	CYL. PACK PRESSURE =
	279.51	2633.2	29.454

INDUCTION AIR	IAIPT1	IAIPT2	TAIRT1	TAIRT2
	79.093	79.437	-63.935	75.857

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	90.803	0.06006	53.304	232.76

CYCL TEMP. = 93.578 HEATER TEMP = 90.101 COOLER TEMP = 72.281

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NASA-LFWIS PRELIMINARY DATA 05/05/76 CADDEIT REC 04/16/76 14:57:57.204 FAC SEX15 PGM C003 RDG 3480

LEANOUT 25 BTDC TO CL APP 80 DEG. HUM= 80% MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. PARAMETRIC PPESSURE = 29.230 RATED HP. = 160.00 HC RATIO= 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	79.817	29.232	180.40	815.83	14.196	14.715

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	93.491	5.5136	44.299	64.944	63.672	6.0609

COOLING AIR	TEMP	UDEL-HOOD	OEL-HOOD	FLOW	REL-HUM	DEW-POINT
	82.556	3.0994	3.9377	10141.	79.417	72.878

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	79.417	36.738	121.80	2.7970	127.81

ENG. COND.	F/A DRY	F/A WET	EQN. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.078046	0.076711	1.1649	2435.3	2435.6	260.85	120.96

WET CORRECTION FACTOR = 0.82735 EXHAUST MOLE. WT. = 27.838 EXHAUST DENSITY = 0.072079 EXHAUST FLOW RATE = 12398.

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	1615.6	645.08	6.5490	11.123	0.12521	
CORRECTED CONC. TO WET BASIS			5.4183	9.2025	0.10359	

	HC	NOX	CO
EMISSION RATE	0.71911	0.95179	48.773
EMISSION MASS/MODE	0.059926	0.079316	4.0644
EMISSION MASS/RATED HP	0.00037454	0.00049572	0.025407
MODE EMIS./STD. CYCLE %	19.712	33.048	60.482

FAL FUEL AIR RATIO = 0.081165 MEAS. FUEL AIR RATIO = 0.078046 DIFF MEAS.& CAL. F/A PERCENT = 3.9963

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	376.04	399.29	415.18	419.30

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	959.93	1331.4	523.53	1959.8	1303.1	1301.0

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 27.872
	188.32	130.05	72.571	

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.379
	248.12	2362.4	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	79.420	79.817	-44.331	75.717

ORIFICE AIR	TEMP	OELTAP	OPEP	FLOW
	91.274	0.055606	52.726	215.75

CFLT TEMP. = 93.503 HEATER TEMP = 90.129 COOLER TEMP = 72.949

ORIGINAL PAGE IS  
OF POOR QUALITY

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NASA-LEWIS PRELIMINARY DATA 05/05/76 CADDEII REC 04/16/76 15:00:54.793 FAC SEK15 PGM C003 RDG 3481

LEANOUT 25 RTDC TO CL APP 80 DEG. HUM= 80% MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO= 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	83.822	29.225	112.11	476.72	8.5426	14.480

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	95.374	5.6754	44.251	42.360	39.535	6.0984

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	83.014	3.0216	3.8869	9998.4	77.816	73.248

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	77.816	75.375	125.44	2.8805	69.471

ENG. COND.	F/A DRY	F/A WET	EDU. PATIO	RPM-1	RPM-2	TORQUE	RHP
	0.082932	0.081472	1.2378	2351.7	2352.4	145.79	65.280

WET CORRECTION FACTOR = 0.84246 EXHAUST MOLE. WT. = 27.449 EXHAUST DENSITY = 0.071072 EXHAUST FLOW RATE = 7384.0

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM	CO DRY
	1754.5	6.9902
	223.70	10.888
		0.11103
CORRECTED CONC. TO WET BASIS		5.8890
		9.1724
		0.093539

	HC	NOX	CO
EMISSION RATE	0.46568	0.19656	31.569
EMISSION MASS/HP/HR	0.046508	0.019656	3.1569
EMISSION MASS/RATED HP	0.00029068	0.00012285	0.019731
MODE EMISS./STD. CYCLE %	15.299	8.1902	46.978

CAL. FUEL AIR RATIO = 0.082304 MEAS. FUEL AIR RATIO = 0.082932 DIFF MEAS. & CAL. F/A PERCENT = -0.75631

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	342.52	352.43	354.40	357.12

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1326.5	1389.5	465.15	1779.5	1165.2	1166.9

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE
	187.93	175.71	72.103	19.362

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	139.32	2327.8	29.353

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	80.461	80.822	16.155	76.379

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	89.739	2.9642	38.945	2362.4

CELL TEMP. = 94.185 HEATER TEMP = 89.631 COOLER TEMP = 70.399

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NASA-LEWIS PRELIMINARY DATA 05/05/76 CADDEII RFC 04/16/76 15:05:52.414 FAC SFX15 PGM C003 RDG 3482

LEANOUT 25 RTDC TO CL APP RO DEG. HUM= 80% MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. PARAMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO= 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	80.522	29.239	212.77	929.10	15.949	14.827

COMP. FUEL	TEMP	PRESS	DENSITY	TURBN FLOW	FLOW TRON	FPIP
	94.776	5.4884	44.266	75.772	72.874	6.0489

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	83.726	3.0618	3.9134	10072.	77.177	72.713

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	77.177	-20.140	120.16	2.7594 155.43

ENG. COND.	F/A DRY	F/A WET	EQV. RATIO	RPM-1	RPM-2	TORQUE	RHP
	0.078435	0.077111	1.1707	2707.7	2707.7	277.54	143.09

WET CORRECTION FACTOR = 0.83222 EXHAUST MOLE WT. = 27.806 EXHAUST DENSITY = 0.071998 EXHAUST FLOW RATE = 14138.

MEASURED CONC.	PART PER MILLION WET	HC PPM	NOX PPM	CO DRY	PER CENT	CO2 DRY	O2 DRY
		1399.4	326.03	6.2204	11.316	0.098750	

CORRECTED CONC. TO WET BASIS

	HC	NOX	CO
EMISSION RATE	0.71031	0.54854	53.137
EMISSION MASS/MODE	0.0035515	0.0027427	0.26568
EMISSION MASS/PATED HP	2.2197E-05	1.7142E-05	0.0016605
MODE EMIS./STO. CYCLE %	1.1683	1.1428	3.9536

CAL. FUEL AIR RATIO = 0.080363 MEAS. FUEL AIR RATIO = 0.078435 DIFF MEAS. & CAL. F/A PERCENT = 2.4582

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	414.13	429.50	414.75	422.44

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SFXT-1	SEXT-2
	1345.5	1486.6	211.26	1852.0	1352.6	1347.7

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE =
	189.15	217.41	74.087	28.262

DYMO COND.	TORQUE	RPM	CYL. RACK PRESSURE =
	273.54	2679.3	29.419

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	80.178	80.522	-44.810	75.506

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	91.743	2.0134	54.086	1964.8

CELL TEMP. = 95.512 HEATFP TEMP = 90.799 COOLER TEMP = 71.541

NASA-LEWIS PRELIMINARY DATA 05/05/76 CADDEII REC 04/16/76 15:10:09.881 FAC SEX15 PGM C003 R0G 3483

LEANCUT 25 BTDC TO CL APP 80 DEG. HUM= 803 MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	77.997	29.207	188.11	814.75	14.098	14.713

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW FROM	FPIF
	92.283	5.5364	44.330	65.131	63.540	6.0257

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	80.840	3.0299	3.8691	10013.	83.842	72.713

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	83.842	47.157	121.13	2.7815	127.68

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.077986	0.076660	1.1640	2434.9	2435.0	261.18	121.09

WET CORRECTION FACTOR = 0.82755 EXHAUST MOLE. WT. = 27.843 EXHAUST DENSITY = 0.072092 EXHAUST FLOW RATE = 12378.

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	1584.7	684.21	6.5033	11.198	0.13199
CORRECTED CONC. TO WET BASIS			5.3818	9.2672	0.10923

	HC	NOX	CO
EMISSION RATE	0.70421	1.0079	48.366
EMISSION MASS/MODE	0.058684	0.083989	4.0305
EMISSION MASS/RATED HP	0.0003667*	0.00052493	0.025190
MODE EMIS./STD. CYCLE %	19.304	34.996	59.977

CAL. FUEL AIR RATIO = 0.080964 MEAS. FUEL AIR RATIO = 0.077986 DIFF MEAS. & CAL. F/A PERCENT = 3.8186

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	370.78	391.90	414.71	418.29

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	601.48	1331.8	475.01	1938.2	1303.6	1301.2

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 27.794
	188.32	334.90	72.735	

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.429
	271.28	2356.6	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	77.608	77.997	-11.388	75.614

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	90.036	3.9694	54.579	2725.8

CYLL TEMP. = 92.926 HEATER TEMP = 92.554 COOLER TEMP = 71.924

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NASA-LEWIS PPELIMINARY DATA 05/05/76 CADDEII REC 04/16/76 15:12:59.063 FAC SEX15 PGM C003 RDG 3484

LEANOUT 25 RTDC TO CL APP 80 DEG. HUM= 80% MCDE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP.= 160.00 HC RATIO= 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	79.084	29.217	112.03	476.98	8.2074	14.482

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	93.873	5.6307	44.289	41.867	39.445	6.0894

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	81.192	2.9635	3.9507	9890.3	79.194	72.083

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	79.194	62.064	120.45	2.7659	69.446

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.042697	0.081298	1.2343	2354.4	2355.1	146.06	65.478

WET CORRECTION FACTOR = 0.84264 EXHAUST MOLE. WT. = 27.467 EXHAUST DENSITY = 0.071120 EXHAUST FLOW RATE = 7376.8

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	1693.5	221.60	6.9781	10.969	0.13659
CORRECTED CONC. TO WET BASIS			5.8901	9.2426	0.11510

	HC	NOX	CO
EMISSION RATE	0.44847	0.19453	31.491
EMISSION MASS/MODE	0.044847	0.019453	3.1491
EMISSION MASS/RATED HP	0.00029030	0.00012158	0.019682
MODE EMIS./STD. CYCLE %	14.752	8.1054	46.861

CAL. FUEL AIR RATIO = 0.082064 MEAS. FUEL AIR RATIO = 0.082697 DIFF MEAS. & CAL. F/A PERCENT = -0.76451

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	344.30	353.31	358.85	361.69

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1372.5	1393.2	494.40	1879.2	1171.8	1173.9

ENGINE OIL	OILT	SOILT	OILP	MANIFOLD PRESSURE =
	187.66	220.09	72.007	19.393

DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE =
	155.90	2327.6	29.340

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	78.784	79.084	46.250	76.421

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	80.382	2.0169	54.289	1970.6

CELL TEMP. = 92.692 HEATER TEMP = 92.540 COOLER TEMP = 74.810

679



NASA-LEWIS PRELIMINARY DATA 04/16/76 CADDEII REC 04/16/76 15:17:50.181 FAC SEX15 PGM C003 RDG 3485

LEANOUT 25 BTDC TO CL APP 80 DEG HUM = 80 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	79.163	29.221	213.02	929.42	16.078	14.834

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	93.300	5.5106	44.304	74.865	71.353	6.0825

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	82.354	3.0784	3.9529	10102.	81.328	72.948

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	81.328	-18.300	121.09	2.7807	154.22

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.076772	0.075466	1.1458	2710.0	2710.2	275.23	142.02

WET CORRECTION FACTOR = 0.83588 EXHAUST MOLE. WT. = 27.942 EXHAUST DENSITY = 0.072350 EXHAUST FLOW RATE = 14054.

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	1298.4	479.45	5.0851	11.964	0.10681
CORRECTED CONC. TO WET BASIS			4.2505	10.001	0.089281

	HC	NOX	CO
EMISSION RATE	0.65514	0.80188	43.371
EMISSION MASS/MODE	0.0032757	0.0040094	0.21685
EMISSION MASS/RATED HP	2.0473E-05	2.5059E-05	0.0013553
MODE EMISS./STD. CYCLE %	1.0775	1.6706	3.2270

CAL. FUEL AIR RATIO = 0.077703 MEAS. FUEL AIR RATIO = 0.076772 DIFF MEAS. & CAL. F/A PERCENT = 1.2129

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	416.31	434.81	419.64	429.85

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1215.8	1510.4	335.54	1884.5	1375.5	1370.2

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.358
	188.77	194.52	74.355	

DYAN COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.389
	271.21	2665.5	

INDUCTION AIR	TAIPT1	TAIRT2	TAIRT1	TAIRT2
	78.845	79.163	-26.423	76.097

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	89.809	1.0936	53.524	1464.6

CFLT TEMP. = 93.760 HEATER TEMP = 90.661 COOLER TEMP = 72.601

NASA-LEWIS PRELIMINARY DATA 04/16/76 CADDELL REC 04/16/76 15:21:06.110 FAC SEX15 PGM C003 RDG 3486

LEANOUT 25 BTDC TO CL APP 80 DEG HUM = 80 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	79.614	29.192	188.72	816.67	14.143	14.706

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	93.943	5.5463	44.288	64.562	61.749	6.0738

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	82.372	3.0584	3.8533	10066.	79.530	72.723

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	79.530	25.154	121.22	126.99

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	PPM-1	RPM-2	TORQUE	BHP
	0.075611	0.074324	1.1285	2434.9	2435.7	259.30	120.22

WET CORRECTION FACTOR = 0.82857 EXHAUST MOLE. WT. = 28.038 EXHAUST DENSITY = 0.072598 EXHAUST FLOW RATE = 12294.

MEASURED CONC.	PART PER MILLION WET			PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1435.2	919.39	5.2930	11.859	0.10461
CORRECTED CONC. TO WET BASIS			4.3856	9.8262	0.086677

	HC	NOX	CO
EMISSION RATE	0.63348	1.3451	39.145
EMISSION MASS/MODE	0.052790	0.11209	3.2621
EMISSION MASS/RATED HP	0.00032993	0.00070058	0.020388
MODE EMIS./STD. CYCLE %	17.365	46.705	48.543

CAL. FUEL AIR RATIO = 0.078243 MEAS. FUEL AIR RATIO = 0.075611 DIFF MEAS. & CAL. F/A PERCENT = 3.4808

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	380.42	406.83	417.61	419.76

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SFXT-1	SEXT-2
	1083.6	1364.3	650.92	1952.1	1329.3	1326.8

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 27.841
	188.62	168.75	72.847	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.287
	264.60	2347.6	

INDUCTION AIR	IAIPT1	IAIRT2	TAIRT1	TAIRT2
	79.216	79.614	16.054	75.846

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	91.003	3.9701	54.337	2723.6

CELL TEMP. = 94.455 HEATER TEMP = 90.447 COOLER TEMP = 73.118

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NASA-LEWIS PRELIMINARY DATA 04/16/76 CADDELL REC 04/16/76 15:23:58.427 FAC SEX15 PGM C003 RDG 3487

LEANOUT 25 BTDC TO CL APP 80 DEG HUM = 80 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	80.646	29.227	111.73	475.43	8.1777	14.477

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	95.564	5.6352	44.246	39.390	37.435	6.1245

COOLING AIR	TEMP	UDFL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	82.600	2.9890	3.7883	9937.8	75.197	72.063

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	75.197	68.711	120.40	2.7649	68.826

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.078739	0.077407	1.1752	2353.9	2354.5	144.51	64.770

WET CORRECTION FACTOR = 0.83943 EXHAUST MOLE. WT. = 27.782 EXHAUST DENSITY = 0.071934 EXHAUST FLOW RATE = 7243.3

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	O2 DRY
	1560.5	331.53	5.5454	11.753
CORRECTED CONC. TO WET BASIS			4.6549	0.099465

	HC	NOX	CO
EMISSION RATE	0.40577	0.28577	24.479
EMISSION MASS/MODE	0.040577	0.028577	2.4479
EMISSION MASS/RATED HP	0.00025361	0.00017860	0.015299
MODE EMIS./STD. CYCLE %	13.348	11.907	36.427

CAL FUEL AIR RATIO = 0.078786 MEAS. FUEL AIR RATIO = 0.078739 DIFF MEAS. & CAL. F/A PERCENT = 0.059651

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	348.28	357.93	360.85	363.64

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1518.6	1433.5	679.13	1846.8	1194.1	1196.0

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 19.392
	188.50	224.21	72.207	

DYNO COND.	TORQUE	RPM	CYL BACK PRESSURE = 29.346
	145.82	2288.5	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	80.319	80.646	64.536	76.557

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	90.890	1.1063	54.446	1471.5

CELL TEMP. = 94.133 HEATER TEMP = 90.350 COOLER TEMP = 75.575

68.2

NASA-LEWIS PRELIMINARY DATA 04/16/76 CADDEII REC 04/16/76 15:41:06.389 FAC SEX15 PGM C003 RDG 3488

LEANOUT 25 BTDC TO CL APP 80 DEG HUM = 80 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	78.722	29.218	212.78	928.72	15.902	14.842

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	93.482	5.5238	44.299	74.714	71.179	6.0666

COOLING AIR	TEMP	UNEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	81.492	3.0103	3.8505	9977.4	81.740	72.668

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	81.740	11.629	119.86	2.7523	154.49

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.076642	0.075352	1.1439	2702.5	2703.3	276.69	142.38

WET CORRECTION FACTOR = 0.83452 EXHAUST MOLE. WT. = 27.953 EXHAUST DENSITY = 0.072377 EXHAUST FLOW RATE = 14034.

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	1280.4	490.37	5.1047	12.078	0.098150
CORRECTED CONC. TO WET BASIS			4.2600	10.079	0.081908

	HC	NOX	CO
EMISSION RATE	0.64514	0.81898	43.406
EMISSION MASS/MODE	0.0032257	0.0040949	0.21703
EMISSION MASS/RATED HP	2.0161E-05	2.5593E-05	0.0013564
MODE EMIS./STD. CYCLE %	1.0611	1.7062	3.2296

CAL. FUEL AIR RATIO = 0.077670 MEAS. FUEL AIR RATIO = 0.076642 DIFF MEAS. & CAL. F/A PERCENT = 1.3412

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	417.54	434.90	419.30	429.57

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1446.7	1507.7	451.18	1926.2	1375.8	1370.8

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	189.07	155.63	73.719	28.317

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	271.90	2617.5	29.391

INDUCTION AIR	IAIPT1	IAIRT2	TAIRT1	TAIRT2
	78.421	78.722	-65.429	76.316

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	89.617	1.0670	53.966	1447.2

CELL TEMP. = 93.665 HEATER TEMP = 97.608 COOLER TEMP = 75.379

NASA-LEW'S PRELIMINARY DATA 04/16/76 CADDEII REC 04/16/76 15:45:02.277 FAC SEX15 PGM C003 RDG 3489

LEANOUT 25 BTDC TO CL APP 80 DEG HUM = 80 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	78.978	29.235	188.30	815.77	13.947	14.711

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FIP
	94.186	5.5806	44.281	63.906	61.443	6.0837

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	81.694	3.0535	3.9230	10057.	80.225	72.363

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	80.225	66.282	119.68	2.7482	126.62

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.075320	0.074053	1.1242	2435.0	2435.7	258.82	120.00

WET CORRECTION FACTOR = 0.82781 EXHAUST MOLE WT. = 28.063 EXHAUST DENSITY = 0.072661 EXHAUST FLOW RATE = 12264.

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1444.4	1000.0	5.2701	11.987	0.15820
CORRECTED CONC. TO WET BASIS			4.3626	9.9228	0.13096

	HC	NOX	CO
EMISSION RATE	0.63598	1.4595	38.845
EMISSION MASS/MODE	0.052999	0.12162	3.2371
EMISSION MASS/RATED HP	0.00033124	0.00076014	0.020232
MODE EMIS./STD. CYCLE %	17.434	50.676	48.171

CAL. FUEL AIR RATIO = 0.077922 MEAS. FUEL AIR RATIO = 0.075320 DIFF MEAS. & CAL. F/A PERCENT = 3.4553

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	378.52	405.82	418.03	418.84

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1369.5	1363.7	797.82	2185.0	1328.6	1326.1

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 27.848
	188.43	238.67	72.367	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.356
	256.45	2350.5	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	78.599	78.978	-35.464	75.600

ORIFICE AIR	TEMP	DELTAP	ORIF	FLOW
	90.236	1.0212	54.173	1415.5

CELL TEMP. = 94.047 HEATER TEMP = 90.641 COOLER TEMP = 72.869

NASA-LEWIS PRELIMINARY DATA 04/16/76 CADDEII REC 04/16/76 15:47:31.341 FAC SEX15 PGM C003 RDG 3490

LEANOUT 25 BTDC TO CL APP 80 DEG HUM = 80 % MODE = 5.0000 NO. SCANS = 4

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	79.843	29.235	110.80	471.92	8.0482	14.478

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	95.820	5.6702	44.240	38.765	37.230	6.0824

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	81.947	2.9942	3.8594	9947.4	76.558	71.818

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	76.558	84.893	119.38	2.7414	69.428

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.078891	0.077568	1.1775	2350.4	2350.4	146.20	65.430

WFT CORRECTION FACTOR = 0.83998 EXHAUST MJLE. WT. = 27.770 EXHAUST DENSITY = 0.071902 EXHAUST FLOW RATE = 7193.0

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	O2 DRY
	1517.7	386.86	5.5562	11.813
CORRECTED CONC. TO WFT BASIS			4.6755	9.9229

	HC	NOX	CO
EMISSION RATE	0.39190	0.33114	24.416
EMISSION MASS/MODE	0.039190	0.033114	2.4416
EMISSION MASS/RATED HP	0.00024494	0.00020696	0.015260
MODE EMIS./STD. CYCLE %	12.891	13.798	36.333

CAL. FUEL AIR RATIO = 0.078710 MEAS. FUEL AIR RATIO = 0.078891 DIFF MEAS. & CAL. F/A PERCENT = -0.22930

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	348.64	362.53	364.36	370.95

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1203.7	1428.7	737.25	1939.0	1199.1	1201.3

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 19.301
	189.12	129.58	72.002	

OYAO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.364
	139.84	2331.2	

INDUCTION AIR	IAIPT1	IAIPT2	TAIRT1	TAIRT2
	79.512	79.843	16.464	76.170

ORIFICE AIR	TEMP	DELTAP	DRFP	FLOW
	90.400	0.083258	53.961	301.08

CELL TEMP. = 94.227 HEATER TEMP = 90.343 COOLER TEMP = 74.100

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NASA-LEWIS		PRELIMINARY DATA		04/16/76		CADDEII		REC 04/16/76 15:52:15.194		FAC SEX15		PGM C003		RDG 3491	
LEANOUT 25 BTDC TO CL APP 80 DEG HUM = 80 %										MODE = 3.0000		NO. SCANS = 5			
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 29.230				RATED HP. = 160.00		HC RATIO = 2.1250			
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		79.755		29.237		212.16		925.65		15.881		14.821			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		95.296		5.5466		44.253		69.851		67.453		6.0720			
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		82.900		3.0612		3.9122		10071.		79.058		72.683			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		79.058		-2.1962		120.10		2.7578		152.66					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.072871		0.071641		1.0876		2703.9		2704.9		273.14		140.62	
WET CORRECTION FACTOR = 0.84091				EXHAUST MOLE. WT. = 28.269				EXHAUST DENSITY = 0.073195				EXHAUST FLOW RATE = 13784.			
MEASURED CONC.		PART PER MILLION WET				PER CENT		CO2 DRY		O2 DRY					
		HC PPM		NOX PPM		CO DRY		13.084		0.14485					
		1076.5		1144.6		2.9851		11.003		0.12181					
CORRECTED CONC. TO WET BASIS						2.5102		11.003		0.12181					
EMISSION RATE		HC		NOX		CO		25.122							
EMISSION MASS/MODE		0.0026637		0.0093881		0.12561									
EMISSION MASS/RATED HP		1.6648E-05		5.8675E-05		0.00078505									
MODE EMIS./STD. CYCLE %		0.87621		3.9117		1.0692									
CAL. FUEL AIR RATIO = 0.073007				MEAS. FUEL AIR RATIO = 0.072871				DIFF MEAS. & CAL. F/A PERCENT = 0.18682							
CYL TEMP DEG. F		CYL-1		CYL-2		CYL-3		CYL-4							
		423.80		441.14		427.97		431.30							
EXT GAS TEMP DEG. F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		647.03		1560.3		821.95		2046.5		1416.5		1410.4			
ENGINE OIL		EOILT		SOILT		OILP		MANIFOLD PRESSURE = 28.350							
		190.00		241.93		74.171									
DYNO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.448									
		279.85		2612.7											
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
		79.402		79.755		-34.081		75.754							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		91.064		1.9926		53.949		1956.4							
CELL TEMP. = 95.140				HEATER TEMP = 90.157				COOLER TEMP = 71.309							

989



NASA-LEWIS PRELIMINARY DATA 04/16/76 CADDETI REC 04/16/76 15:54:36.001 FAC SEX15 PGM C003 RDG 3492

LFANOUT 25 BTDC TO CL APP 80 DEG HUM = 80 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	80.073	29.224	190.65	826.76	14.192	14.728

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	95.764	5.5482	44.241	62.628	58.794	6.0753

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	82.917	3.0382	3.8890	10029.	77.791	72.513

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	77.791	39.928	120.16	2.7593	125.94

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.071114	0.069914	1.0514	2431.5	2431.8	257.45	119.19

WET CORRECTION FACTOR = 0.82895 EXHAUST MOLE. WT. = 28.420 EXHAUST DENSITY = 0.073585 EXHAUST FLOW RATE = 12227.

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	1038.4	1484.5	3.6129	12.695	0.30077
CORRECTED CONC. TO WET BASIS			2.9949	10.523	0.24932

	HC	NOX	CO
EMISSION RATE	0.45581	2.1601	26.586
EMISSION MASS/MODE	0.037984	0.18001	2.2155
EMISSION MASS/RATED HP	0.00023740	0.0011250	0.013847
MODE EMIS./STD. CYCLE %	12.495	75.002	32.968

CAL. FUEL AIR RATIO = 0.073816 MEAS. FUEL AIR RATIO = 0.071114 DIFF MEAS. & CAL. F/A PERCENT = 3.7997

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	399.71	421.50	418.12	418.75

FXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1455.1	1417.0	805.70	2120.8	1369.3	1366.6

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.031
	189.72	202.94	72.399	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.283
	238.20	2357.9	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	79.675	80.073	30.520	75.619

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	91.369	3.9327	54.009	2709.9

CFL TEMP. = 95.452 HEATER TEMP = 90.115 COOLER TEMP = 73.564

687



NASA-LEWIS PRELIMINARY DATA 04/16/76 CADDEII REC 04/16/76 15:57:49.325 FAC SEX15 PGM C003 RDG 3493

LEANOUT 25 ATDC TO CL APP 80 DEG HUM = 80 % MODE = 5.0000 NO. SCANS = 4

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	81.000	29.220	112.65	479.89	8.2363	14.483

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	97.551	5.6586	44.196	35.807	34.631	6.1176

COOLING AIR	TEMP	UNFL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	83.146	3.0104	3.8172	9977.6	74.205	72.012

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	74.205	75.560	120.14	2.7588	69.468

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.072164	0.070947	1.0771	2352.8	2353.1	145.90	65.361

WET CORRECTION FACTOR = 0.83845 EXHAUST MOLE WT. = 28.329 EXHAUST DENSITY = 0.073351 EXHAUST FLOW RATE = 7126.8

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	O2 DRY
	1180.7	798.70	3.0368	13.002
CORRECTED CONC. TO WET BASIS			CO DRY	O2 DRY
			2.5462	10.902
				0.21674

	HC	NOX	CO
EMISSION RATE	0.30209	0.57737	13.174
EMISSION MASS/MODE	0.030209	0.067737	1.3174
EMISSION MASS/RATED HP	0.00018881	0.00042335	0.0082339
MODE EMIS./STD. CYCLE %	9.9373	28.224	19.605

CAL.FUEL AIR RATIO = 0.072830 MEAS. FUEL AIR RATIO = 0.072164 DIFF MEAS.& CAL. F/A PERCENT = 0.92218

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	355.12	359.26	364.64	365.45

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1551.6	1482.3	1043.9	2014.9	1236.2	1237.8

ENGINE OIL	FOILT	SOILT	OILO	MANIFOLD PRESSURE = 19.603
	188.69	139.72	72.117	

DYMO COND.	TORQUE	RPM	CYL.BACK PRESSURE = 29.258
	139.71	2294.5	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	80.648	81.000	40.312	76.172

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	91.402	0.093759	53.946	330.23

CELL TEMP. = 95.755 HEATER TEMP = 90.041 COOLER TEMP = 74.601

NASA-LEWIS PRELIMINARY DATA 04/16/76 CADDEII REC-04/16/76 16:07:16.791 FAC SEX15 PGM C003 RDG 3495

LEANOUT 25 BTDC TO CL APP RO DEG HUM = 80 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	78.501	29.258	191.02	826.87	14.247	14.709

CCMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	94.316	5.5767	44.278	61.112	58.395	6.0921

CCCLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	81.359	2.9533	3.8591	9871.1	82.102	72.583

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	82.102	63.912	120.61	2.7697	126.26

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	PPM-1	RPM-2	TORQUE	BHP
	0.070622	0.069425	1.0541	2431.4	2432.0	258.55	119.70

WET CORRECTION FACTOR = 0.82596 EXHAUST MOLE. WT. = 28.462 EXHAUST DENSITY = 0.073696 EXHAUST FLOW RATE = 12205.

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1069.8	1494.7	3.6683	12.637	0.29553
CORRECTED CONC. TO WET BASIS			3.0299	10.437	0.24409

	HC	NOX	CO
EMISSION RATE	0.46877	2.1711	26.849
EMISSION MASS/MODE	0.039064	0.18092	2.2374
EMISSION MASS/RATED HP	0.00024415	0.0011308	0.013984
MODE EMIS./STD. CYCLE %	12.850	75.385	33.294

CAL. FUEL AIR RATIO = 0.073982 MEAS. FUEL AIR RATIO = 0.070622 DIFF MEAS. & CAL. F/A PERCENT = 4.7581

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	392.39	416.62	415.61	414.23

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1592.6	1399.3	821.06	2038.7	1371.5	1369.0

ENGINE OIL	EQILT	SOILT	OILP	MANIFOLD PRESSURE = 27.934
	188.73	219.05	72.559	

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.459
	267.62	2381.5	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	78.103	78.501	19.932	75.849

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	89.347	1.0906	53.779	1463.2

CELL TEMP. = 94.108 HEATER TEMP = 89.859 COOLER TEMP = 73.448

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NASA-LEWIS PRELIMINARY DATA 04/16/76 CADDEII REC 04/16/76 16:09:55.442 FAC SEX15 PGM C003 RDG 3496

LEANOUT 25 BTDC TO CL APP 80 DEG HUM = 80 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	79.376	29.230	112.44	478.79	8.2336	14.483

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	95.920	5.6901	44.237	36.671	34.671	6.1191

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	81.677	3.0280	3.7550	10010.	78.399	72.068

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	78.399	80.290	120.38	2.7643	68.221

ENG. COND.	F/A DRY	F/A WET	EQV. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.072415	0.071190	1.0908	2351.8	2352.8	143.58	64.293

WET CORRECTION FACTOR = 0.83932 EXHAUST MOLE. WT. = 28.308 EXHAUST DENSITY = 0.073296 EXHAUST FLOW RATE = 7117.6

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	O2 DRY
	1154.8	807.58	3.0372	13.019
CORRECTED CONC. TO WET BASIS			2.5492	10.927

	HC	NOX	CO
EMISSION RATE	0.29508	0.58402	13.173
EMISSION MASS/MODE	0.029508	0.068402	1.3173
EMISSION MASS/RATED HP	0.00018443	0.00042751	0.0082328
MODE EMISS./STD. CYCLE %	9.7066	28.501	19.602

CAL. FUEL AIR RATIO = 0.072862 MEAS. FUEL AIR RATIO = 0.072415 DIFF MEAS. & CAL. F/A PERCENT = 0.61774

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	359.95	366.63	371.77	375.08

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1560.3	1402.5	1044.5	1905.6	1256.2	1258.3

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE =
	187.95	206.90	71.947	19.584

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE =
	146.76	2335.1	29.337

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	79.031	79.376	70.578	76.389

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	89.722	1.0293	54.211	1421.7

CELL TEMP. = 94.255 HEATER TEMP = 89.887 COOLER TEMP = 74.739

NASA-LEWIS PRELIMINARY DATA 04/16/76 CARDEII REC 04/16/76 16:43:53.985 FAC SEX15 PGM C003 RDG 3497

LEAKOUT 25 BTDC TO CL APP 80 DEG HUM = 60 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	79.499	29.235	213.36	936.65	12.568	14.838

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	93.361	5.4368	44.302	81.501	78.605	6.0030

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	82.777	2.9965	3.7863	9951.7	62.795	65.712

RFL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	62.795	38.468	93.930	2.1570	153.36

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.083921	0.082810	1.2526	2702.1	2702.5	276.59	142.30

WET CORRECTION FACTOR = 0.84133 EXHAUST MOLE. WT. = 27.372 EXHAUST DENSITY = 0.070874 EXHAUST FLOW RATE = 14502.

MEASURED CONC.	PART PER MILLION WFT		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1651.8	247.26	8.1412	10.4370	0.12573
CORRECTED CONC. TO WET BASIS			6.8495	8.7808	0.10578

	HC	NOX	CO
EMISSION RATE	0.85995	0.42672	72.115
EMISSION MASS/MODE	0.0042998	0.0021336	0.36058
EMISSION MASS/RATED HP	2.6873E-05	1.3335E-05	0.0022536
MODE EMIS./STD. CYCLE %	1.4144	0.88899	5.3657

CAL. FUEL AIR RATIO = 0.084741 MEAS. FUEL AIR RATIO = 0.083921 DIFF MEAS. & CAL. F/A PERCENT = 0.97715

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	412.00	429.73	404.96	418.85

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1473.5	1366.1	501.80	1737.9	1286.5	1282.0

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.275
	189.53	187.98	73.375	

CYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.449
	269.93	2616.7	

INDUCTION AIR	IAIRT1	IAIPT2	TAIRT1	TAIRT2
	79.199	79.499	-42.528	76.213

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	90.324	1.0422	54.076	1429.6

CELL TEMP. = 98.463 HEATER TEMP = 91.939 COOLER TEMP = 75.450

ORIGINAL PAGE IS  
OF POOR QUALITY

NASA-LEWIS PRELIMINARY DATA 04/16/76 CADD11 REC 04/16/76 16:50:47.112 FAC SEX15 PGM C003 RDG 3498

LEANOUT 25 BTDC TO CL APP 80 DEG HUM = 60 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	80.725	29.202	187.68	816.35	11.029	14.714

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	94.255	5.4932	44.280	68.878	66.958	6.0498

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	83.445	3.0709	3.8051	10089.	60.223	65.662

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	60.223	69.513	94.575	2.1718	127.01

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.082020	0.080927	1.2242	2440.7	2441.5	260.24	120.94

WET CORRECTION FACTOR = 0.83359 EXHAUST MOLE. WT. = 27.520 EXHAUST DENSITY = 0.071257 EXHAUST FLOW RATE = 12550.

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1824.9	513.69	8.1452	10.4330	0.15430
CORRECTED CONC. TO WET BASIS			6.7897	8.6968	0.12862

	HC	NOX	CO
EMISSION RATE	0.82225	0.76723	61.868
EMISSION MASS/MODE	0.068521	0.063936	5.1556
EMISSION MASS/RATED HP	0.00042826	0.00039960	0.032223
MODE EMIS./STD. CYCLE %	22.540	26.640	76.721

CAL. FUEL AIR RATIO = 0.084749 MEAS. FUEL AIR RATIO = 0.082020 DIFF MEAS. & CAL. F/A PERCENT = 3.3265

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	364.45	388.44	416.31	420.21

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	872.11	1219.9	582.76	1842.8	1239.2	1237.2

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 27.636
	188.97	207.93	72.527	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.367
	251.19	2343.2	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	80.381	80.725	-56.266	76.568

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	91.143	3.0069	54.063	2375.6

CELL TEMP. = 98.860 HEATER TEMP = 90.889 COOLER TEMP = 75.771

NASA-LEWIS PRELIMINARY DATA 04/16/76 CADDEII REC 04/16/76 16:53:23.829 FAC SEX15 PGM C003 RDG 3499

LEANOUT 25 BTDC TO CL APP 80 DEG HUM = 60 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	80.928	29.236	112.03	480.17	6.4628	14.484

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	95.773	5.6283	44.241	44.576	41.704	6.1032

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	82.372	2.9751	3.6836	9912.0	58.672	65.102

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	58.672	81.330	94.215	2.1635	67.934

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.086852	0.085699	1.2963	2360.1	2361.1	143.26	64.375

WET CORRECTION FACTOR = 0.84846 EXHAUST MOLE. WT. = 27.149 EXHAUST DENSITY = 0.070296 EXHAUST FLOW RATE = 7515.9

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	2033.1	159.92	8.6442	10.1230	0.17128
CORRECTED CONC. TO WET BASIS			7.3342	8.5893	0.14532

	HC	NOX	CO
EMISSION RATE	0.54857	0.14303	40.019
EMISSION MASS/MODE	0.054857	0.014303	4.0019
EMISSION MASS/RATED HP	0.00034286	8.9392E-05	0.025012
MODE FMIS./STD. CYCLE %	18.045	5.9595	59.553

CAL. FUEL AIR RATIO = 0.086066 MEAS. FUEL AIR RATIO = 0.086852 DIFF MEAS. & CAL. F/A PERCENT = -0.90465

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	338.92	350.02	355.14	362.28

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1753.3	1267.7	485.18	1700.4	1108.4	1110.6

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 19.319
	189.02	83.945	71.899	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.290
	148.54	2319.8	

INDUCTION AIR	TAIPT1	TAIRT2	TAIRT1	TAIRT2
	80.699	80.928	-43.467	76.038

ORIFICE AIR	TEMP	DFLTAP	ORFP	FLOW
	91.360	0.064406	53.302	244.10

CELL TEMP. = 99.032 HEATER TEMP = 108.00 COOLER TEMP = 74.418

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NASA-LEI IS PRELIMINARY DATA 04/16/76 CADDEII REC 04/16/76 17:10:44.727 FAC SEX15 PGM C003 RDG 3500

LEANOUT 25 BTDC TO CL APP 80 DEG HUM = 60 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.220 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	79.040	29.218	212.94	935.04	12.717	14.836

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	92.352	5.4434	44.328	79.117	76.904	6.0639

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	81.271	2.9433	3.8079	9852.4	64.584	66.087

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	64.584	20.832	95.202	2.1862	154.03

ENG. COND.	E/A DRY	E/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.082246	0.081143	1.2276	2702.5	2703.4	277.61	142.85

WET CORRECTION FACTOR = 0.83373 EXHAUST MOLE. WT. = 27.503 EXHAUST DENSITY = 0.071211 EXHAUST FLOW RATE = 14389.

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	NOX PPM	CO DRY
1689.8	217.24	8.1903
CORRECTED CONC. TO WET BASIS		CO2 DRY
		10.4020
		0.12849
		0.10713

EMISSION RATE	HC	NOX	CO
	0.87288	0.37198	71.334
EMISSION MASS/MODE	0.0043644	0.0018599	0.35667
EMISSION MASS/RATED HP	2.7277E-05	1.1624E-05	0.0022292
MODE EMIS./STD. CYCLE %	1.4357	0.77496	5.3076

CAL. FUEL AIR RATIO = 0.084891 MEAS. FUEL AIR RATIO = 0.082246 DIFF MEAS. & CAL. F/A PERCENT = 3.2161

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	413.08	430.90	402.06	416.14

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1418.2	1436.9	556.00	1760.6	1287.6	1282.2

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.269
	186.62	223.74	74.555	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.403
	279.35	2598.9	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	78.739	79.040	-80.752	75.861

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	90.167	1.0707	54.105	1449.0

CELL TEMP. = 97.728 HEATER TEMP = 103.37 COOLER TEMP = 72.824



NASA-LEWIS PPELIMINARY DATA 04/16/76 CADDEII REC 04/16/76 17:13:31.791 FAC SEX15 PGM C003 RDG 3501  
 LEANOUT 25 BTDC TO CL APP 80 DEG HUM = 60 % MCDE = 4.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.220 RATED HP. = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	80.117	29.205	185.72	806.43	11.010	14.697	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	93.083	5.4965	44.310	69.949	65.808	6.0627	
COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	82.187	3.0158	3.8312	9987.7	61.989	65.922	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	61.989	54.701	95.566	2.1945	125.57		
ENG. COND.	F/A DRY	F/A WET	FQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.081604	0.080505	1.2180	2435.0	2435.7	257.99	119.61
WET CORRECTION FACTOR = 0.83336		EXHAUST MOLE. WT. = 27.553		EXHAUST DENSITY = 0.071342		EXHAUST FLOW RATE = 12380.	
PART PER MILLION WET		PER CENT					
MEASURED CONC.	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	1816.1	544.69	7.9538	10.5840	0.16450		
CORRECTED CONC. TO WET BASIS				8.8202	0.13708		
		HC	NOX	CO			
EMISSION RATE		0.80718	0.80249	59.577			
EMISSION MASS/MODE		0.067265	0.066874	4.9648			
EMISSION MASS/RATED HP		0.00042041	0.00041796	0.031030			
MODE EMIS./STD. CYCLE %		22.127	27.864	73.881			
CAL. FUEL AIR RATIO = 0.084179		MEAS. FUEL AIR RATIO = 0.081604		DIFF MEAS. & CAL. F/A PERCENT = 3.1557			
CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4			
	371.29	389.81	411.86	417.70			
EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	1685.3	1282.4	662.15	1761.3	1238.5	1235.9	
ENGINE OIL	EOILT	SOILT	OTLP	MANIFOLD PRESSURE = 27.477			
	187.97	185.33	72.607				
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.318				
	258.81	2365.0					
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2			
	79.781	90.117	-41.073	76.728			
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW			
	90.507	2.9983	54.090	2373.7			
CELL TEMP. = 98.100		HEATER TEMP. = 97.409		COOLER TEMP. = 75.646			

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NASA-LEWIS PPELIMINARY DATA 04/16/76 CADDEII REC 04/16/76 17:16:14.275 FAC SEX15 PGM C003 RDG 3502

LEANOUT 25 BTDC TO CL APP 80 DEG HUM = 60 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.220 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	80.381	29.210	111.12	475.88	6.4599	14.476

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	94.654	5.6097	44.269	44.226	41.578	6.0936

COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	81.333	2.9458	3.7052	9857.1	60.197	65.327

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	60.197	73.597	95.023	2.1821	67.717

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.087372	0.086202	1.3041	2350.9	2350.7	143.44	64.205

WET CORRECTION FACTOR = 0.84914 EXHAUST MOLE. WT. = 27.111 EXHAUST DENSITY = 0.070196 EXHAUST FLOW RATE = 7463.6

MEASURED CONC.	PART PER MILLION WET	PER CENT		
HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
2028.5	147.63	8.7718	10.0720	0.16950
CORRECTED CONC. TO WET BASIS		7.4485	8.5522	0.14393

	HC	NOX	CO
EMISSION RATE	0.54352	0.13112	40.360
EMISSION MASS/MODE	0.054352	0.013112	4.0360
EMISSION MASS/RATED HP	0.00033970	8.1953E-05	0.025225
MODE EMIS./STD. CYCLE %	17.879	5.4635	60.060

CAL. FUEL AIR RATIO = 0.085364 MEAS. FUEL AIR RATIO = 0.087372 DIFF MEAS. & CAL. F/A PERCENT = -1.1538

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	335.71	349.23	350.97	355.51

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1726.6	1334.6	665.50	1721.9	1100.3	1102.4

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE =
	189.58	201.09	71.887	19.153

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE =
	136.82	2310.5	29.301

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	80.081	80.381	-30.704	76.121

CRIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	90.873	1.0567	54.063	1438.7

CELL TEMP. = 97.970 HEATER TEMP = 104.53 COOLER TEMP = 74.214

NASA-LEWIS		PRELIMINARY DATA		04/16/76		CADDEIT		REC 04/16/76 17:24:50.890		FAC SEX15		PGM C003		RDG 3503	
LEANOUT 25 BTDC TO CL APP 80 DEG HUM = 60 %															
MODE = 3.0000															
NO. SCANS = 5															
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 29.220				RATED HP. = 160.00				HC RATIO = 2.1250	
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		80.381		29.236		212.97		935.20		12.664		14.832			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		94.620		5.4470		44.270		79.878		76.745		5.9628			
COOLING AIR		TEMP		INDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		83.251		3.0313		3.7359		10016.		61.530		65.957			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		61.530		-22.862		94.790		2.1767		154.59					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.082063		0.080966		1.2248		2704.8		2705.9		278.22		143.29	
WET CORRECTION FACTOR = 0.93762				EXHAUST MOLE. WT. = 27.517				EXHAUST DENSITY = 0.071248				EXHAUST FLOW RATE = 14380.			
MEASURED CONC.		PART PER MILLION WFT				PER CENT									
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		1572.7		273.19		7.6956		10.7060		0.12785					
CORRECTED CONC. TO WET BASIS						6.4459		8.9678		0.10709					
EMISSION RATE		HC		NOX		CO									
		0.81191		0.46751		67.298									
EMISSION MASS/MODE		0.0040596		0.0023375		0.33649									
EMISSION MASS/RATED HP		2.5372E-05		1.4610E-05		0.0021031									
MODE EMIS./STD. CYCLE %		1.3354		0.97397		5.0073									
CAL. FUEL AIR RATIO = 0.083582				MEAS. FUEL AIR RATIO = 0.082063				DIFF MEAS. & CAL. F/A PERCENT = 1.8519							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		415.73		435.14		409.49		427.67							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		1153.4		1443.2		702.29		1656.3		1299.3		1293.9			
ENGINE OIL		EOILT		SOILT		OILP		MANIFOLD PRESSURE = 28.229							
		188.31		129.83		73.587									
DYNO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.411									
		270.88		2676.9											
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
		80.081		80.381		-38.704		75.758							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		91.700		0.042304		54.042		170.29							
CELL TEMP. = 99.516				HEATER TEMP = 97.636				CONLER TEMP = 71.496							

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NASA-LEWIS PRELIMINARY DATA 04/16/76 CADDEII REC 04/16/76 17:27:02.187 FAC SEX15 PGM C003 RDG 3504

LEANOUT 25 BTDC TO CL APP 80 DEG HUM = 60 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PPESSURE = 29.220 RATED HP.= 160.00 HC RATIO= 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	81.227	29.200	186.89	812.72	11.044	14.708

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	95.122	5.5055	44.257	70.539	66.718	6.0576

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	81.892	2.9555	3.7783	9875.2	59.557	65.812

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	59.557	45.787	95.121	2.1843	127.34

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.082092	0.080991	1.2252	2443.0	2443.7	260.51	121.18

WET CORRECTION FACTOR = 0.83838 EXHAUST MOLE. WT. = 27.515 EXHAUST DENSITY = 0.071242 EXHAUST FLOW RATE = 12499.

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM NOX PPM CO DRY CO2 DRY O2 DRY	
	1753.3 609.44 7.6456 10.7500 0.15900	
CORRECTED CONC. TO WET BASIS		
	6.4099 9.0128 0.13330	

	HC	NOX	CO
EMISSION RATE	0.78674	0.90649	58.167
EMISSION MASS/MODE	0.065562	0.075541	4.8473
EMISSION MASS/RATED HP	0.00040976	0.00047213	0.030295
MODE EMIS./STD. CYCLE %	21.566	31.475	72.132

CAL. FUEL AIR RATIO = 0.083424 MEAS. FUEL AIR RATIO = 0.082092 DIFF MEAS. & CAL. F/A PERCENT = 1.6235

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	383.44	401.52	414.95	423.53

EXT GAS TEMP DEG.F	FXT-1	FXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1320.6	1290.1	692.04	1832.8	1252.4	1249.9

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 27.656
	189.90	237.84	72.199	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.301
	260.73	2376.4	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	80.893	31.227	-57.818	76.413

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	91.917	1.0632	54.064	1441.7

CYL TEMP. = 99.723 HEATER TEMP = 95.045 COOLER TEMP = 72.129

NASA-LEWIS PRELIMINARY DATA 04/16/76 CADDEII REC 04/16/76 17:29:49.935 FAC SEX15 PGM C003 RDG 3505

LEANOUT 25 BTDC TO CL APP 80 DEG HUM = 60 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BARMETRIC PRESSURE = 29.220 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	79.773	29.221	111.05	475.60	6.4519	14.473

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	94.906	5.6115	44.263	43.096	41.182	6.1110

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	81.095	2.9295	3.6737	9826.4	61.354	65.302

RFL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	61.354	72.559	94.961	2.1806	67.933

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.086590	0.085431	1.2924	2353.1	2353.7	143.86	64.456

WET CORRECTION FACTOR = 0.85078 EXHAUST MOLE. WT. = 27.159 EXHAUST DENSITY = 0.070347 EXHAUST FLOW RATE = 7437.8

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1932.0	176.94	8.2584	10.3760	0.17036
CORRECTED CONC. TO WET BASIS			7.0261	8.8274	0.14494

	HC	NOX	CO
EMISSION RATE	0.51588	0.15661	37.940
EMISSION MASS/MODE	0.051588	0.015661	3.7940
EMISSION MASS/RATED HP	0.00032242	9.7880E-05	0.023712
MODE EMIS./STD. CYCLE %	16.970	6.5253	56.458

CAL. FUEL AIR RATIO = 0.084997 MEAS. FUEL AIR RATIO = 0.086590 DIFF MEAS. & CAL. F/A PERCENT = -1.8402

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	337.80	349.18	349.78	355.08

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1632.0	1340.9	744.12	1800.1	1108.8	1110.6

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	189.27	297.23	71.779	19.165

DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	146.53	2318.6	29.298

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	79.508	79.773	21.159	75.969

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	90.489	1.0247	54.030	1417.6

CFL. TEMP. = 98.005 HEATED TEMP = 98.393 COOLER TEMP = 72.815

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NASA-LEI:IS PPELIMINARY DATA 04/16/76 CADDEII REC 04/16/76 17:35:21.475 FAC SEX15 PGM C003 RDG 3506

LEANOUT 25 BTDC TO CL APP 80 DEG HUM = 60 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BARMETRIC PRESSURE = 29.220 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	78.580	29.203	213.13	935.41	12.652	14.834

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	92.648	5.4569	44.321	80.938	77.798	6.0303

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	81.280	2.9978	3.8621	9954.3	65.204	65.927

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	65.204	-18.924	94.678	2.1741	153.27

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.083169	0.082060	1.2413	2707.5	2707.6	275.70	142.13

WET CORRECTION FACTOR = 0.84247 EXHAUST MOLE. WT. = 27.431 EXHAUST DENSITY = 0.071024 EXHAUST FLOW RATE = 14443.

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	1606.8	02 DRY
NOX PPM	265.37	10.7040
CO DRY	7.6702	0.12887
CORRECTED CONC. TO WET BASIS	6.4619	9.0177
		0.10857

	HC	NOX	CO
EMISSION RATE	0.83315	0.45611	67.760
EMISSION MASS/MODE	0.0041658	0.0022806	0.33880
EMISSION MASS/RATED HP	2.6036E-05	1.4254E-05	0.0021175
MODE EMIS./STD. CYCLE %	1.3703	0.95024	5.0417

CAL. FUEL AIR RATIO = 0.083552 MEAS. FUEL AIR RATIO = 0.083169 DIFF MEAS. & CAL. F/A PERCENT = 0.45938

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	413.64	433.05	406.76	420.63

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1406.4	1437.5	666.46	1767.1	1301.5	1296.8

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.229
	189.40	240.36	73.363	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.327
	271.51	2631.3	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	78.289	78.580	-37.393	76.105

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	89.661	0.097910	54.066	342.01

CELL TEMP. = 97.676 HEATER TEMP = 119.53 COOLER TEMP = 73.278

700

NASA-LEWIS PRELIMINARY DATA 04/16/76 CADDEII REC 04/16/76 17:38:16.564 FAC SEX15 PGM C003 RDG 3507

LEANOUT 25 BTDC TO CL APP 80 DEG HUM = 60 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.220 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	79.526	29.238	184.86	802.76	10.929	14.693

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	93.291	5.4941	44.304	67.919	64.578	6.0168

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	81.941	2.9616	3.7860	9886.6	63.014	65.837

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	63.014	40.450	95.300	2.1884	125.80

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.080446	0.079365	1.2007	2436.5	2436.6	258.51	119.93

WFT CORRECTION FACTOR = 0.83417 EXHAUST MOLE. WT. = 27.645 EXHAUST DENSITY = 0.071579 EXHAUST FLOW RATE = 12269.

MEASURED CONC.	PART PER MILLION WFT		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1710.0	641.72	7.3981	10.8480	0.17646
CORRECTED CONC. TO WET BASIS			6.1713	9.0493	0.14720

	HC	NOX	CO
EMISSION RATE	0.75322	0.93699	54.973
EMISSION MASS/MODE	0.062768	0.078082	4.5811
EMISSION MASS/RATED HP	0.00039230	0.00048801	0.028632
MODE FMIS./STD. CYCLE %	20.647	32.534	68.171

CAL. FUEL AIR RATIO = 0.082800 MEAS. FUEL AIR RATIO = 0.080446 DIFF MEAS. & CAL. F/A PERCENT = 2.9270

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	372.50	395.79	415.40	422.92

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1598.9	1289.8	710.46	1906.8	1249.5	1247.4

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 27.573
	190.07	240.10	72.215	

DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.395
	248.22	2337.0	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	79.146	79.526	36.760	76.630

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	89.975	2.0009	54.025	1962.1

CELL TEMP. = 97.866 HEATER TEMP = 99.048 COOLER TEMP = 74.231

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NASA-LEWIS PRELIMINARY DATA 04/16/76 CADDELL REC 04/16/76 17:41:30.121 FAC SEX15 PGM C003 RDG 3508

LEANOUT 25 BTDC TO CL APP 80 DEG HUM = 60 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.220 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	80.020	29.216	111.16	475.84	6.4559	14.476

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	94.828	5.6184	44.265	43.718	41.251	6.1556

COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	81.104	2.9198	3.6654	9808.1	60.881	65.312

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	60.881	66.361	94.971	2.1809 68.840

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.086691	0.085530	1.2939	2355.9	2356.3	145.59	65.307

WET CORRECTION FACTOR = 0.85135 EXHAUST MOLE. WT. = 27.152 EXHAUST DENSITY = 0.070328 EXHAUST FLOW RATE = 7444.6

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM NOX PPM CO DRY CO2 DRY O2 DRY	
	1961.9 176.32 8.2640 10.3470 0.18438	
CORRECTED CONC. TO WET BASIS		7.0356 8.8089 0.15697

EMISSION RATE	HC	NOX	CO
	0.52432	0.15620	38.025
EMISSION MASS/MODE	0.052432	0.015620	3.8025
EMISSION MASS/RATED HP	0.00032770	9.7623E-05	0.023765
MODE EMIS./STD. CYCLE %	17.248	6.5082	56.584

CAL. FUEL AIR RATIO = 0.085009 MEAS. FUEL AIR RATIO = 0.086691 DIFF MEAS. & CAL. F/A PERCENT = -1.9401

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	335.72	346.66	346.41	353.49

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1146.4	1338.7	717.10	1838.4	1101.1	1103.1

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 19.170
	189.35	185.24	71.607	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.289
	153.32	2307.6	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	79.728	80.020	81.516	76.346

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	90.306	0.048905	54.094	193.44

CELL TEMP. = 97.806 HEATER TEMP = 100.43 COOLER TEMP = 73.474



NASA-LEWIS PRELIMINARY DATA 04/16/76 CADDEII REC 04/16/76 17:46:50.746 FAC SEX15 PGM C003 RDG 3509

LEANOUT 25 BTDC TO CL APP 80 DEG HUM = 60 % MCDE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.220 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	79.772	29.222	212.28	930.82	12.942	14.827

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	93.986	5.5058	44.286	79.124	75.175	6.0132

COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	82.671	2.9350	3.8422	9836.8	64.387	66.692

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	64.387	-41.230	97.325	2.2349	154.55

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.080763	0.079655	1.2054	2709.6	2710.3	277.50	143.17

WET CORRECTION FACTOR = 0.84745 EXHAUST MOLE. WT. = 27.620 EXHAUST DENSITY = 0.071514 EXHAUST FLOW RATE = 14248.

MEASURED CONC.	PART PER. MILLION WET			PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1363.6	410.36	6.0930	11.5360	0.14123
CORRECTED CONC. TO WET BASIS			5.1635	9.7758	0.11969

	HC	NOX	CO
EMISSION RATE	0.69751	0.69577	53.412
EMISSION MASS/MODE	0.0034875	0.0034789	0.26706
EMISSION MASS/RATED HP	2.1797E-05	2.1743E-05	0.0016691
MODE EMIS./STD. CYCLE %	1.1472	1.4495	3.9741

EAL FUEL AIR RATIO = 0.079766 MEAS. FUEL AIR RATIO = 0.080763 DIFF MEAS. & CAL. F/A PERCENT = -1.2586

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	425.44	441.67	421.52	433.92

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1679.7	1456.7	749.81	1780.3	1333.1	1327.5

ENGINE OIL	EQILT	SOILT	OILT	MANIFOLD PRESSURE
	188.29	210.97	73.775	28.226

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	275.49	2656.2	29.311

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	79.437	79.772	-14.182	76.043

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	91.803	3.9537	54.059	2716.1

CELL TEMP. = 99.291 HEATER TEMP = 94.224 COOLER TEMP = 71.924

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NASA-LEWIS PRELIMINARY DATA 04/16/76 CADDEII REC 04/16/76 17:52:02.851 FAC SEX15 PGM C003 RDG 3511

LEANOUT 25 BTDC TO CL APP 80 DEG HUM = 60 % MCDE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.220 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	80.672	29.220	110.51	473.58	6.4107	14.473

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	96.266	5.6325	44.228	40.647	38.578	6.0774

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	81.861	2.8708	3.7191	9715.3	59.451	65.242

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	59.451	58.110	94.757	2.1759 68.529

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.081460	0.080372	1.2158	2355.4	2356.3	144.86	64.965

WET CORRECTION FACTOR = 0.84509 EXHAUST MOLE. WT. = 27.564 EXHAUST DENSITY = 0.071371 EXHAUST FLOW RATE = 7265.8

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	1761.7	308.19	6.6399	11.2110	0.15532	
CORRECTED CONC. TO WET BASIS			5.6113	9.4741	0.13125	

	HC	NOX	CO
EMISSION RATE	0.45952	0.26647	29.599
EMISSION MASS/MODE	0.045952	0.026647	2.9599
EMISSION MASS/RATED HP	0.00028720	0.00016654	0.018500
MODE EMIS./STD. CYCLE %	15.116	11.103	44.046

CAL. FUEL AIR RATIO = 0.081181 MEAS. FUEL AIR RATIO = 0.081460 DIFF MEAS. & CAL. F/A PERCENT = -0.34236

CYL TEMP. DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	346.20	357.25	359.48	366.15

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1398.3	1362.7	795.40	1866.6	1139.1	1141.5

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 19.182
	188.54	160.53	71.951	

DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.316
	143.70	2296.8	

INDUCTION AIR	TAIRT1	TAIPT2	TAIRT1	TAIRT2
	80.355	80.672	90.495	75.669

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	91.177	2.9701	53.571	2361.6

CELL TEMP. = 99.334 HEATER TEMP. = 107.16 COOLER TEMP. = 70.979

NASA-LEWIS PRELIMINARY DATA 04/16/76 CADDELL REC 04/16/76 17:54:45.883 FAC SEX15 PGM C003 RSG 3512

LEANOUT 25 BTDC TO CL APP 90 DEG HUM = 60 % MODE = 3.0000 NO. SCANS = 4

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.220 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	80.130	29.188	213.20	937.12	12.753	14.840

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPI
	95.181	5.4857	44.256	74.179	73.369	6.0516

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	82.816	3.0084	3.7833	9973.8	62.369	66.111

RFL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	62.369	-0.85759	95.261	2.1875	155.57

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.078292	0.077241	1.1585	2713.4	2714.4	278.57	143.92

WET CORRECTION FACTOR = 0.83873 EXHAUST MOLE. WT. = 27.818 EXHAUST DENSITY = 0.072028 EXHAUST FLOW RATE = 14206.

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1356.4	493.45	5.9164	11.6330	0.12934
CORRECTED CONC. TO WET BASIS			4.9523	9.7569	0.10848

	HC	NOX	CO
EMISSION RATE	0.69176	0.83419	51.179
EMISSION MASS/MODE	0.0034588	0.0041709	0.25590
EMISSION MASS/RATED HP	2.1617E-05	2.5068E-05	0.0015994
MODE EMIS./STD. CYCLE %	1.1378	1.7379	3.8080

CAL. FUEL AIR RATIO = 0.079394 MEAS. FUEL AIR RATIO = 0.078292 DIFF MEAS. & CAL. F/A PERCENT = 1.4078

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	402.97	423.64	412.21	415.34

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1951.8	1462.3	819.34	1869.2	1320.7	1315.4

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.265
	189.03	42.937	74.072	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.330
	271.56	2627.7	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	79.865	80.130	46.640	75.421

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	92.261	3.7196	54.532	2633.5

CELL TEMP. = 99.763 HEATER TEMP = 109.03 COOLER TEMP = 70.725

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NASA-LFWIS PRELIMINARY DATA 04/16/76 CADDEII REC 04/16/76 17:57:11.989 FAC SEX15 PGM C003 RDG 3513

LEANOUT 25 BTDC TO CL APP 80 DEG HUM = 60 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BARMETRIC PRESSURE = 29.220 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	81.139	29.242	183.42	797.07	10.837	14.692

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	95.608	5.5403	44.245	62.056	60.576	6.0885

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	83.647	2.9245	3.8508	9817.0	59.696	65.797

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	59.696	35.348	95.177	2.1856 126.59

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.075998	0.074979	1.1343	2434.7	2435.6	259.89	120.48

WET CORRECTION FACTOR = 0.83194 EXHAUST MOLE. WT. = 28.006 EXHAUST DENSITY = 0.072515 EXHAUST FLOW RATE = 11976.

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1488.4	1026.6	5.6762	11.7310	0.18808
CORRECTED CONC. TO WET BASIS			4.7223	9.7594	0.15647

	HC	NOX	CO
EMISSION RATE	0.63997	1.4631	41.060
EMISSION MASS/MODE	0.053331	0.12193	3.4217
EMISSION MASS/RATED HP	0.00033332	0.00076204	0.021385
MODE EMIS./STD. CYCLE %	17.543	50.803	50.918

CAL. FUEL AIR RATIO = 0.078752 MEAS. FUEL AIR RATIO = 0.075998 DIFF MEAS. & CAL. F/A PERCENT = 3.6365

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	386.59	406.80	420.08	424.44

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1244.1	1318.0	785.53	1857.3	1278.2	1275.2

ENGINE OIL	EQILT	SOILT	OILP	MANIFOLD PRESSURE = 27.533
	198.11	124.78	72.095	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.359
	251.93	2377.4	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	83.787	81.139	62.311	76.191

ORIFICE ATP	TEMP	DELTAP	ORFP	FLOW
	91.891	4.0082	53.821	2734.5

CELL TEMP. = 100.14 HEATER TEMP = 105.97 COOLER TEMP = 71.817

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NASA-LEWIS PRELIMINARY DATA 04/16/76 CADDEII REC 04/16/76 18:06:36.157 FAC SEX15 PGM C003 RDG 3514  
 LEANOUT 25 ATDC TO CL APP 80 DEG HUM = 60 % MODE = 5.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.220 RATED HP. = 160.00 HC RATIO = 2.1250  
 COMB. AIR TEMP PRESS CFM DRY FLOW VAPOR FLOW PRESS TOTAL  
 78.925 29.219 110.34 473.13 6.4163 14.477  
 COMB. FUEL TEMP PRESS DENSITY TURBO FLOW FLOW TRON FPIP  
 94.706 5.6349 44.268 39.693 38.251 6.1002  
 COOLING AIR TEMP UDEL-HOOD DEL-HOOD FLOW REL-HUM DEW-POINT  
 80.267 2.9690 3.6944 9937.8 63.083 65.302  
 REL-HUM 1 2 HUMIDITY % H2O VAPOR CORRECTED HP  
 63.083 30.385 94.931 2.1799 69.041  
 ENG. COND. F/A DRY F/A WET EQU. RATIO RPM-1 RPM-2 TORQUE BHP  
 0.080847 0.079765 1.2067 2355.0 2356.2 146.27 65.589  
 WET CORRECTION FACTOR = 0.84232 EXHAUST MOLE. WT. = 27.613 EXHAUST DENSITY = 0.071497 EXHAUST FLOW RATE = 7242.2  
 MEASURED CONC. PART PER MILLION WET PER CENT  
 HC PPM NOX PPM CO DRY CO2 DRY O2 DRY  
 1758.7 310.25 6.6829 11.1950 0.17534  
 CORRECTED CONC. TO WET BASIS 5.6291 9.4302 0.14769  
 EMISSION RATE HC NOX CO  
 0.45725 0.26738 29.597  
 EMISSION MASS/MODE 0.045725 0.026738 2.9597  
 EMISSION MASS/RATED HP 0.00028578 0.00016711 0.018498  
 MODE EMIS./STD. CYCLE % 15.041 11.141 44.043  
 CAL. FUEL AIR RATIO = 0.081202 MEAS. FUEL AIR RATIO = 0.080847 DIFF MEAS. & CAL. F/A PERCENT = 0.43940  
 CYL TEMP DEG.F CYL-1 CYL-2 CYL-3 CYL-4  
 340.10 352.08 350.96 352.64  
 EXT GAS TEMP DEG.F EXT-1 EXT-2 EXT-3 EXT-4 SEXT-1 SEXT-2  
 1355.9 1365.6 863.80 1676.1 1099.1 1099.4  
 ENGINE OIL EOILT SOILT OILP MANIFOLD PRESSURE = 19.135  
 185.76 207.79 71.555  
 DYNO COND. TORQUE RPM CYL. BACK PRESSURE = 29.375  
 139.32 2356.6  
 INDUCTION AIR IAIRT1 IAIRT2 TAIRT1 TAIRT2  
 78.637 78.925 -69.735 75.514  
 ORIFICE AIR TEMP DELTAP ORFP FLOW  
 89.800 1.0540 54.163 1438.3  
 CELL TEMP. = 97.331 HEATER TEMP = 102.39 COOLER TEMP = 63.635

NASA-LEWIS	PRELIMINARY DATA	04/16/76	CADDEII	REC 04/16/76 18:13:31.878	FAC SEX15	PGM C003	RDG 3515
LEANOUT 25 BTDC TO CL APP 90 DEG HUM = 60 %		MODE = 3.0000		NO. SCANS = 4			
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.200		RATED HP. = 160.00		HC RATIO = 2.1250
COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	79.380	29.206	211.94	928.85	12.656	14.815	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	93.804	5.5202	44.291	77.300	73.095	6.0265	
COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	82.167	2.9893	3.7930	9938.4	63.893	66.099	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	63.893	-21.280	95.381	2.1903	153.79		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.078694	0.077636	1.1745	2701.7	2702.0	277.01	142.50
WET CORRECTION FACTOR = 0.85024		EXHAUST MOLF. WT. = 27.786		EXHAUST DENSITY = 0.071943		EXHAUST FLOW RATE = 14102.	
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	1274.4	645.61	4.9434	12.1820	0.14521		
CORRECTED CONC. TO WET BASIS			CO DRY		O2 DRY		
			4.2031	10.357	0.12347		
EMISSION RATE	HC	NOX	CO				
	0.64520	1.0835	43.034				
EMISSION MASS/MODE	0.0032260	0.0054174	0.21517				
EMISSION MASS/RATED HP	2.0163E-05	3.3859E-05	0.0013448				
MODE FMIS./STD. CYCLE %	1.0612	2.2573	3.2019				
CAL. FUEL AIR RATIO = 0.077134		MEAS. FUEL AIR RATIO = 0.078694		DIFF MEAS. & CAL. F/A PERCENT = -1.9818			
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	428.37	442.97	428.37	439.07			
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	836.74	1469.8	799.48	1965.6	1348.9	1342.9	
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.328			
	186.61	250.43	73.822				
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.353				
	277.53	2551.1					
INDUCTION AIR	IAIPT1	IAIRT2	TAIRT1	TAIRT2			
	79.093	79.380	-61.114	76.095			
ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW			
	90.585	2.5219	54.193	2186.6			
CELL TEMP. = 98.870		HEATER TEMP = 95.753		COOLER TEMP = 73.610			

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NASA-LEWIS	PRELIMINARY DATA	04/16/76	CADDEII	REC 04/16/76 18:16:26.594	FAC SEX15	PGM C003	RDG 3516
LEANOUT 25 BTDC TO CL APP 90 DEG HUM = 60 %				MODE = 4.0000	NO. SCANS = 3		
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.200		RATED HP. = 160.00		HC RATIO = 2.1250
COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	80.181	29.152	185.91	807.80	11.034	14.700	
COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	94.455	5.5411	44.274	63.589	60.701	6.0946	
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	82.574	3.0665	3.8063	10081.	61.901	65.942	
REL-PUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	61.901	50.238	95.612	2.1956	125.76		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.075143	0.074131	1.1215	2436.7	2436.7	258.15	119.77
WET CORRECTION FACTOR = 0.83729		EXHAUST MOLE. WT. = 28.077		EXHAUST DENSITY = 0.072699		EXHAUST FLOW RATE = 12098.	
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	1320.0	1280.8	4.8518	12.2140	0.25789		
CORRECTED CONC. TO WET BASIS			4.0624	10.227	0.21593		
EMISSION RATE	HC	NOX	CO				
	0.57330	1.8440	35.681				
EMISSION MASS/MODE	0.047775	0.15366	2.9734				
EMISSION MASS/RATED HP	0.00029859	0.0096039	0.018584				
MODE EMIS./STD. CYCLE %	15.715	64.026	44.248				
CAL. FUEL AIR RATIO = 0.076608		MEAS. FUEL AIR RATIO = 0.075143		DIFF MEAS.& CAL. F/A PERCENT = 1.9486			
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	392.02	413.59	421.79	425.22			
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	1034.7	1336.6	821.48	1970.7	1302.5	1299.6	
ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 27.698			
	185.22	170.75	72.574				
DYNO COND.	TORQUE	RPM	CYL. PACK PRESSURE = 29.520				
	250.48	2400.6					
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2			
	79.873	80.181	-33.547	76.482			
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW			
	90.803	3.2960	54.012	2484.3			
CELL TEMP. = 98.926	HEATER TEMP = 92.669		COOLER TEMP = 73.555				

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NASA-LEWIS		PRELIMINARY DATA		04/16/76	CADDEII	REC 04/16/76 18:21:27.773		FAC SEX15	PGM C003	RDG 3518	
LEANOUT 25 BTDC TO CL APP 80 DEG HUM = 60 %				MODE = 3.0000		NO. SCANS = 5					
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.200		RATED HP. = 160.00		HC RATIO = 2.1250			
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL					
	79.993	29.231	212.35	930.65	12.726	14.806					
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP					
	94.802	5.5262	44.266	72.358	70.930	6.0186					
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT					
	82.512	2.9646	3.8018	9892.3	62.804	66.182					
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP						
	62.804	14.645	95.724	2.1981	154.73						
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP				
	0.076216	0.075188	1.1375	2704.5	2704.8	278.50	143.42				
WET CORRECTION FACTOR = 0.84117			EXHAUST MOLE. WT. = 27.988		EXHAUST DENSITY = 0.072468		EXHAUST FLOW RATE = 13996.				
MEASURED CONC.	PART PER MILLION WET		PER CENT								
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY						
	1219.7	718.69	4.7902	12.221	0.14913						
CORRECTED CONC. TO WET BASIS			4.0294	10.280	0.12545						
EMISSION RATE	HC	NOX	CO								
	0.61288	1.1970	40.945								
EMISSION MASS/MODE	0.0030644	0.0059852	0.20472								
EMISSION MASS/RATED HP	1.9152E-05	3.7407E-05	0.0012795								
MODE EMIS./STD. CYCLE %	1.0090	2.4938	3.0465								
CAL. FUEL AIR RATIO = 0.076801		MEAS. FUEL AIR RATIO = 0.076216		DIFF MEAS. & CAL. F/A PERCENT = 0.76774							
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4							
	407.61	424.66	415.31	416.89							
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2					
	1141.3	1471.3	898.50	1949.6	1340.3	1334.6					
ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.235							
	186.45	207.94	73.911								
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.290								
	232.83	2668.2									
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2							
	79.720	79.993	56.306	75.731							
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW							
	91.273	0.053105	53.932	207.45							
CELL TEMP. = 99.385	HEATER TEMP = 108.51		COOLER TEMP = 72.396								

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NASA-LEWIS		PRELIMINARY DATA		04/16/76	CADDEIT	REC 04/16/76 18:18:54.372		FAC SEX15	PGM C003	RDG 3517
LEANOUT 25 BTDC TO CL APP 80 DEG HUM = 60 %				MODE = 5.0000		NO. SCANS = 5				
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.200		RATED HP. = 160.00		HC RATIO = 2.1250		
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL				
	80.275	29.203	110.37	472.79	6.4404	14.467				
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP				
	95.963	5.6463	44.236	37.783	36.379	6.1320				
COOLING AIR	TEMP	UNEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT				
	81.227	2.9624	3.7800	9888.2	60.574	65.407				
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP					
	60.574	72.547	95.354	2.1896	69.280					
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP			
	0.076944	0.075910	1.1484	2359.1	2359.0	146.27	65.702			
WET CORRECTION FACTOR = 0.83927				EXHAUST MOLE. WT. = 27.928		EXHAUST DENSITY = 0.072313		EXHAUST FLOW RATE = 7130.3		
MEASURED CONC.		PART PER MILLION WET		PER CENT						
		HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY				
		1569.7	485.89	5.2810	11.9900	0.20244				
CORRECTED CONC. TO WET BASIS				4.4322	10.063	0.16990				
		HC	NOX	CO						
EMISSION RATE		0.40180	0.41228	22.943						
EMISSION MASS/MODE		0.040180	0.041228	2.2943						
EMISSION MASS/PATED HP		0.00025112	0.00025767	0.014340						
MODE EMIS./STD. CYCLE %		13.217	17.178	34.142						
CAL. FUEL AIR RATIO = 0.077845		MEAS. FUEL AIR RATIO = 0.076944		DIFF MEAS. & CAL. F/A PERCENT = 1.1710						
CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4						
	351.19	361.77	363.97	370.34						
EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2				
	1524.2	1378.3	910.17	1845.1	1159.1	1161.2				
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 19.183						
	184.46	274.27	71.995							
DYNO COMD.	TORQUE	RPM	CYL. BACK PRESSURE = 29.247							
	152.06	2310.6								
INDUCTION AIR	IAIRT1	IAIRT2	TAIPT1	TAIRT2						
	79.967	80.275	40.706	75.616						
ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW						
	91.169	1.0209	54.044	1414.1						
CELL TEMP. = 98.653	HEATER TEMP = 111.03		COOLER TEMP = 70.988							



NASA-LE-15 PRELIMINARY DATA 04/16/76 CADDEII REC 04/16/76 18:24:04.796 FAC SEX15 PGM C003 RDG 3519

LEANOUT 25 BTDC TO CL APP 80 DEG HUM = 60 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.200 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR TEMP 81.007 PRESS 29.207 CFM 185.86 DRY FLOW 806.61 VAPOR FLOW 11.088 PRESS TOTAL 14.684

COMP. FUEL TEMP 95.252 PRESS 5.5640 DENSITY 44.254 TURBO FLOW 61.709 FLOW TRON 60.000 FPIP 6.0900

COOLING AIR TEMP 83.348 UNEL-HOOD 2.9735 DEL-HOOD 3.7456 FLOW 9908.9 REL-HUM 60.571 DEW-POINT 66.092

REL-HUM 1 2 HUMIDITY % H2O VAPOR CORRECTED HP  
60.571 38.016 96.226 2.2097 127.14

ENG. COND. F/A DRY F/A WET EQU. RATIO RPM-1 RPM-2 TORQUE BHP  
0.074385 0.073377 1.1102 2439.5 2439.0 260.47 120.99

WET CORRECTION FACTOR = 0.83330 EXHAUST MOLE. WT. = 28.141 EXHAUST DENSITY = 0.072863 EXHAUST FLOW RATE = 12045.

MEASURED CONC. PART PER MILLION WET PER CENT  
HC PPM NOX PPM CO DRY CO2 DRY  
1317.6 1307.2 4.8812 12.195 0.24780  
CORRECTED CONC. TO WET BASIS 4.0575 10.162 0.20650

EMISSION RATE HC NOX CO  
0.56980 1.8738 35.571  
EMISSION MASS/MODE 0.047483 0.15615 2.9642  
EMISSION MASS/RATED HP 0.00029677 0.00097596 0.018527  
MODE FMS./STD. CYCLE % 15.619 65.064 44.111

CAL. FUEL AIR RATIO = 0.076708 MEAS. FUEL AIR RATIO = 0.074385 DIFF MEAS. & CAL. F/A PERCENT = 3.1230

CYL TEMP DEG. F CYL-1 CYL-2 CYL-3 CYL-4  
392.67 410.84 422.33 424.41

EXT GAS TEMP DEG. F EXT-1 EXT-2 EXT-3 EXT-4 SEXT-1 SEXT-2  
1646.3 1325.7 825.31 2005.8 1302.1 1298.9

ENGINE OIL FOILT SOILT OILP MANIFOLD PRESSURE = 27.732  
184.65 286.97 72.647

DYNO COND. TORQUE RPM CYL. BACK PRESSURE = 29.219  
251.17 2331.7

INDUCTION AIR TAIRT1 TAIRT2 TAIRT1 TAIRT2  
80.672 81.007 77.562 76.492

CRIFICE AIR TEMP DELTAP ORFP FLOW  
91.343 2.0601 53.846 1986.9

CFLT TEMP. = 99.731 HEATER TEMP = 93.886 COOLER TEMP = 73.661

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NASA-LEWIS	PRELIMINARY DATA	04/16/76	CADDEII	REC 04/16/76 18:26:40.914	FAC SEX15	PGM C003	RDG 3520
LEANOUT 25 BTDC TO CL APP 80 DEG HUM = 60 %				MODE = 5.0000	NO. SCANS = 5		
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.200		RATED HP. = 160.00		HC RATIO = 2.1250
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	81.148	29.197	109.70	469.72	6.4024	14.464	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	96.708	5.6490	44.217	38.291	36.997	6.1104	
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	82.134	2.8852	3.7697	9742.6	58.896	65.417	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	58.896	61.252	95.412	2.1910	68.754		
ENG. COND.	F/A DRY	F/A WET	EQV. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.078763	0.077704	1.1756	2353.0	2353.2	145.38	65.132
WET CORRECTION FACTOR = 0.84566		EXHAUST MOLE. WT. = 27.780		EXHAUST DENSITY = 0.071929		EXHAUST FLOW RATE = 7133.7	
MEASURED CONC.	PART PER MILLION WET		PFR CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	1598.0	469.37	5.4112	11.945	0.18848		
CORRECTED CONC. TO WET BASIS			4.5760	10.101	0.15939		
EMISSION RATE	HC	NOX	CO				
	0.40924	0.39845	23.699				
EMISSION MASS/MODE							
	0.040924	0.039845	2.3699				
EMISSION MASS/RATED HP							
	0.00025577	0.00024903	0.014812				
MODE EMIS./STD. CYCLE %							
	13.462	16.602	35.267				
CAL. FUEL AIR RATIO = 0.078164		MEAS. FUEL AIR RATIO = 0.078763		DIFF MEAS. & CAL. F/A PERCENT = -0.76039			
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	351.84	361.74	362.51	369.74			
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	1345.1	1380.5	903.32	1859.4	1155.3	1157.0	
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 19.092			
	186.47	166.65	71.487				
DYNO COND.	TORQUE	RPM	CYL. RACK PRESSURE = 29.218				
	147.48	2286.6					
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2			
	80.849	81.148	103.94	75.715			
ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW			
	91.917	1.0482	54.212	1431.6			
CELL TEMP. = 99.481		HEATER TEMP = 109.25		COOLER TEMP = 71.416			

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NASA-LEWIS PRELIMINARY DATA 04/16/76 CADDEII REC 04/16/76 18:32:07.317 FAC SEX15 PGM C003 RDG 3521

LEAN OUT 25 BTDC TO CL APP 80 DEG HUM = 60 % MCDE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.200 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	78.254	29.193	211.19	924.21	12.811	14.801

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	92.900	5.5415	44.314	68.712	65.743	6.0573

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	81.254	3.0247	3.8292	10004.	67.365	66.557

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	67.365	-40.420	97.034	2.2282	153.01

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	PPM-1	RPM-2	TORQUE	BHP
	0.071134	0.070161	1.0617	2698.0	2698.8	276.05	141.81

WET CORRECTION FACTOR = 0.83690 EXHAUST MOLE. WT. = 28.418 EXHAUST DENSITY = 0.073581 EXHAUST FLOW RATE = 13627.

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	1042.2	1270.5	2.9486	13.2040	0.16740
CORRECTED CONC. TO WET BASIS			2.4577	11.051	0.14009

	HC	NOX	CO
EMISSION RATE	0.50989	2.0604	24.415
EMISSION MASS/MODE	0.0025495	0.010302	0.12207
EMISSION MASS/FATED HP	1.5934E-05	6.4389E-05	0.00076296
MODE EMIS./STD. CYCLE %	0.93864	4.2926	1.8166

CAL. FUEL AIR RATIO = 0.072902 MEAS. FUEL AIR RATIO = 0.071134 DIFF MEAS. & CAL. F/A PERCENT = 2.3455

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	434.47	445.35	433.65	441.66

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1504.9	1472.6	1080.5	1926.8	1395.4	1389.5

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	185.82	214.38	73.295	28.306

DYN. COND.	TORQUE	RPM	CYL. BACK PRESSURE
	291.32	2641.2	29.381

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	77.971	78.254	10.352	76.205

PRIFICE AIR	TEMP	DELTA P	PRF	FLTW
	69.300	1.9892	53.962	1957.8

CELL TEMP. = 97.616 HEATER TEMP = 94.107 COOLER TEMP = 73.599

NASA-LEWIS PRELIMINARY DATA 04/16/76 CADDII REC 04/16/76 18:37:53.328 FAC SEX15 PGM C003 RDG 3523

LEANOUT 25 BTDC TO CL APP 80 DFG HUM = 60 % MCDE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.200 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	79.225	29.208	111.19	476.13	6.5241	14.472

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	95.131	5.6652	44.257	36.499	34.452	6.1014

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	80.460	2.9530	3.7249	9870.6	63.075	65.582

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	63.075	68.969	95.916	2.2026	68.410

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.072359	0.071381	1.0800	2355.6	2356.5	144.78	64.936

WET CORRECTION FACTOR = 0.84535 EXHAUST MOLE WT. = 28.313 EXHAUST DENSITY = 0.073308 EXHAUST FLOW RATE = 7093.9

MEASURED CONC.	PART PER MILLION WET	CO DRY	PER CENT	CO2 DRY
	HC PPM	2.9209	13.1160	0.30855
	NOX PPM	2.4591	11.087	0.26083

CORRECTED CONC. TO WET BASIS	HC	NOX	CO
EMISSION RATE	0.29872	0.74975	12.645
EMISSION MASS/MODE	0.029872	0.074975	1.2645
EMISSION MASS/RATED HP	0.00018670	0.00046859	0.0079030
MODE EMIS./STD. CYCLE %	9.8263	31.240	18.817

CAL. FUEL AIR RATIO = 0.072407 MEAS. FUEL AIR RATIO = 0.072359 DIFF MEAS. & CAL. F/A PERCENT = 0.066063

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	355.07	364.89	366.16	372.02

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1415.0	387.53	1054.0	1889.0	1205.1	1207.4

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE
	184.99	145.93	71.495	19.429

DYNOCOND.	TORQUE	RPM	CYL. BACK PRESSURE
	144.61	2298.3	29.249

INDUCTION AIR	TAIRT1	TAIRT2	TAIPT1	TAIRT2
	78.952	79.225	111.83	75.896

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	89.460	1.0361	54.661	1426.6

CELL TEMP. = 97.944 HEATER TEMP = 108.11 COOLER TEMP = 72.691

ORIGINAL PAGE IS  
OF POOR QUALITY

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NASA-LEWIS	PRELIMINARY DATA	04/16/76	CADDFII	REC 04/16/76 18:42:23.284	FAC SEX15	PGM C003	RDG 3524
LEAKOUT 25 BTDC TO CL APP 80 DEG HUM = 60 %			MODE = 3.0000	NO. SCANS = 5			
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.200		RATED HP. = 160.00		HC RATIO = 2.1250
COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	79.296	29.194	211.73	927.82	12.761	14.817	
COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	94.238	5.5385	44.280	66.754	64.515	6.0537	
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT	
	81.976	2.9674	3.7517	9897.5	64.668	66.368	
RFL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP			
	64.668	4.2884	96.278	2.2109 155.19			
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.069534	0.068591	1.0378	2702.7	2703.5	279.29	143.72
WET CORRECTION FACTOR = 0.82976		EXHAUST MOLE. WT. = 28.487		EXHAUST DENSITY = 0.073759		EXHAUST FLOW RATE = 13626.	
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	1015.3	1332.6	2.9229	13.1850	0.16510		
CORRECTED CONC. TO WET BASIS			2.4253	10.940	0.13699		
EMISSION RATE	HC	NOX	CO				
	0.49669	2.1610	23.993				
EMISSION MASS/MODE	0.0024834	0.010805	0.11997				
EMISSION MASS/RATED HP	1.5521E-05	6.7530E-05	0.00074979				
MODE EMIS./STD. CYCLE %	0.81692	4.5020	1.7852				
CAL. FUEL AIR RATIO = 0.072761		MEAS. FUEL AIR RATIO = 0.069534		DIFF MEAS. & CAL. F/A PERCENT = 4.6410			
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	427.75	439.49	430.49	436.06			
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	493.73	650.11	1033.8	1996.5	1394.3	1388.6	
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.279			
	186.11	160.28	73.619				
DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.385				
	270.82	2524.7					
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2			
	78.960	78.296	25.541	76.129			
DRYICE AIR	TEMP	DELTA P	ORFP	FLOW			
	89.687	1.0424	54.024	1430.6			
CELL TEMP. = 98.652		HEATER TEMP = 106.02		COOLER TEMP = 74.178			

NASA-LFW'S PRELIMINARY DATA 04/16/76 CADDEII RFC 04/16/76 18:49:18.080 FAC SEX15 PGM C003 RDG 3525

LEANOUT 25 RTDC TO CL APP 80 DEG HUM = 60 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.200 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR TEMP 80.487 PRESS 29.182 CFM 190.45 DRY FLOW 827.89 VAPOR FLOW 11.513 PRESS TOTAL 14.711

COMP. FUEL TEMP 95.018 PRESS 5.5451 DENSITY 44.260 TURBO FLOW 60.668 FLOW FROM 57.615 FPIP 6.0837

COOLING AIR TEMP 83.031 INLET-HOOD 2.9464 DEL-HOOD 3.7847 FLOW 9858.1 REL-HUM 62.423 DEW-POINT 66.473

REL-HUM 1 62.423 2 48.131 HUMIDITY 97.348 % H2O VAPOR CORRECTED HP 126.15

ENG. COND. F/A DRY 0.069592 F/A WET 0.068638 EQU. RATIO 1.0387 RPM-1 2439.1 RPM-2 2439.2 TORQUE 258.51 BHP 120.06

WET CORRECTION FACTOR = 0.83012 EXHAUST MOLE. WT. = 28.481 EXHAUST DENSITY = 0.073744 EXHAUST FLOW RATE = 12163.

MEASURED CONC. HC PPM 910.69 NOX PPM 1650.8 CO DRY 3.3964 CO2 DRY 12.7900 C2 DRY 0.42536  
CORRECTED CONC. TO WET BASIS CO DRY 2.8194 CO2 DRY 10.517 C2 DRY 0.35659

EMISSION RATE HC 0.40642 NOX 2.3895 CO 24.898  
EMISSION MASS/MODE 0.033868 0.19912 2.0748  
EMISSION MASS/RATED HP 0.00021168 0.0012445 0.012968  
MODE EMIS./STD. CYCLE % 11.141 82.968 30.875

CAL. FUEL AIR RATIO = 0.072904 MEAS. FUEL AIR RATIO = 0.069592 DIFF MEAS. & CAL. F/A PERCENT = 4.7590

CYL TEMP DEG.F CYL-1 399.99 CYL-2 418.80 CYL-3 417.07 CYL-4 414.46

EXT GAS TEMP DEG.F EXT-1 1317.7 EXT-2 93.431 EXT-3 741.89 EXT-4 1920.0 SEXT-1 1340.7 SEXT-2 1338.3

ENGINE OIL EOILT 184.52 SOILT 157.76 OILP 72.515 MANIFOLD PRESSURE = 27.992

DYMO COND. TORQUE 256.26 RPM 2360.0 CYL. BACK PRESSURE = 29.269

INDUCTION AIR TAIRT1 80.125 TAIRT2 80.487 TAIRT1 71.3177 TAIRT2 76.466

PIPEICE AIR TEMP 90.297 DELTAP 1.0488 DRFP 53.765 FLOW 1434.1

CEIL TEMP. = 99.240 HEATER TEMP = 91.200 COOLER TEMP = 72.780

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NASA-LEWIS		PRELIMINARY DATA		04/16/76	CADDEII	REC 04/16/76 18:49:39.479		FAC SEX15	PGM C003	RDG 3526	
LEANOUT 25 BTDC TO CL APP 80 DEG HUM = 60 %				MODE = 4.0000		NO. SCANS = 5					
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.200		RATED HP. = 160.00		HC RATIO = 2.1250			
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL					
	80.531	29.142	190.62	828.11	11.485	14.702					
COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP					
	95.027	5.5514	44.260	60.587	58.107	6.0885					
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT					
	82.979	2.9181	3.7395	9805.0	62.129	66.377					
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP						
	62.129	52.535	97.085	2.7294	126.95						
ENG. COND.	F/A DRY	F/A WET	FOU. RATIO	RPM-1	RPM-2	TORQUE	BHP				
	0.070158	0.069208	1.0473	2439.2	2439.8	260.15	120.82				
WET CORRECTION FACTOR = 0.83319				EXHAUST MOLE. WT. = 28.502		EXHAUST DENSITY = 0.073798		EXHAUST FLOW RATE = 12164.			
MEASURED CONC.	PART PER MILLION WET		PER CENT								
	HC PPM	NOX PPM	CO DRY	CO2 DRY	C2 DRY						
	913.39	1641.7	3.3729	12.8290	0.43490						
CORRECTED CONC. TO WET BASIS			2.8103	10.689	0.36236						
EMISSION RATE	HC	NOX	CO								
	0.39888	2.3764	24.819								
EMISSION MASS/MODE	0.033240	0.19803	2.0682								
EMISSION MASS/RATED HP	0.00020775	0.0012377	0.012926								
MODE EMIS./STD. CYCLE %	10.934	82.514	30.777								
CAL. FUEL AIR RATIO = 0.072817		MEAS. FUEL AIR RATIO = 0.070168		DIFF MEAS. & CAL. F/A PERCENT = 3.7752							
CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4							
	400.14	418.79	417.36	414.03							
EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2					
	1052.6	-166.40	719.62	1774.1	1340.9	1338.4					
ENGINE OIL	COILT	SOILT	OILP	MANIFOLD PRESSURE = 27.924							
	185.39	284.16	72.607								
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.284								
	266.57	2376.0									
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2							
	80.187	80.531	148.14	76.493							
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW							
	90.437	0.056406	54.014	219.54							
CELL TEMP. =	99.248	HEATER TEMP = 91.124		COOLER TEMP = 73.234							



NASA-LEWIS PRELIMINARY DATA 04/16/76 CADDEII REC 04/16/76 18:53:44.212 FAC SEX15 PGM C003 RDG 3527

LEANOUT 25 BTDC TO CL APP 80 DEG HUM = 60 ? MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. . . . . BAROMETRIC PRESSURE = 29.200 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	80.505	29.199	111.65	478.58	6.5519	14.467

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	96.656	5.6553	44.218	36.842	34.467	6.1284

COOLING AIR	TEMP	UNEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	81.941	2.9707	3.7108	9903.7	60.416	65.547

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	60.416	72.469	95.832	2.2006	67.417

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.072020	0.071047	1.0749	2358.0	2358.1	142.30	63.887

WET CORRECTION FACTOR = 0.84369 EXHAUST MOLE. WT. = 28.342 EXHAUST DENSITY = 0.073383 EXHAUST FLOW RATE = 7080.6

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	NOX PPM	CO DRY
1172.4	937.79	2.9298
		11.064

CORRECTED CONC. TO WET BASIS	HC	NOX	CO
	0.29802	0.79018	12.707
	0.029802	0.079018	1.2707
	0.00018626	0.00049386	0.0079417
	9.8033	32.924	18.909

CAL. FUEL AIR RATIO = 0.072419 MEAS. FUEL AIR RATIO = 0.072020 DIFF MEAS. & CAL. F/A PERCENT = 0.55467

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	364.16	372.63	376.57	382.40

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1094.2	-211.86	982.69	1976.7	1218.3	1220.9

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE
	134.98	344.82	71.923	19.471

DYMC COND.	TORQUE	RPM	CYL. BACK PRESSURE
	136.76	2314.2	29.193

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	80.222	80.505	117.05	75.215

GRIFICE AIR	TEMP	DELTAP	DRFP	FLOW
	90.655	1.0774	54.230	1452.8

CELL TEMP. = 99.421 HEATER TEMP = 101.83 COOLER TEMP = 68.400

719



NASA-LEWIS PRELIMINARY DATA 04/21/76 CADDEII REC 04/21/76 13:30:39.779 FAC SEX15 PGM C003 RDG 3529

CLIMB LEANOUT RE-RUNS 100 DEG. HUM=0% MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.970 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	98.393	29.026	188.08	799.87	0.15105	14.586

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	80.725	5.4623	44.529	66.864	64.479	6.0582

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	98.851	3.0626	3.8516	10073.	0.48908	-19.621

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	0.48908	55.057	1.3219	0.030356	125.47

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.080613	0.080597	1.2332	2427.5	2430.5	260.08	120.21

WET CORRECTION FACTOR = 0.85285 EXHAUST MOLE. WT. = 27.632 EXHAUST DENSITY = 0.071545 EXHAUST FLOW RATE = 12083.

MEASURED CONC.	HC PPM	NOX PPM	CO DRY	PER CENT CO2 DRY	O2 DRY
	1399.9	937.69	7.3182	10.890	0.11277
CORRECTED CONC. TO WET BASIS			6.2413	9.2871	0.096177

EMISSION RATE	HC	NOX	CO
	0.60728	1.3483	54.751
EMISSION MASS/MODE	0.050606	0.11236	4.5626
EMISSION MASS/RATED HP	0.00031629	0.00070225	0.078516
MODE EMIS./STD. CYCLE %	16.647	46.817	67.896

CAL. FUEL AIR RATIO = 0.082662 MEAS. FUEL AIR RATIO = 0.080613 DIFF MEAS. & CAL. F/A PERCENT = 2.5418

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	389.49	408.94	441.15	442.94

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1005.0	1247.9	1197.7	2009.6	1247.5	1237.6

ENGINE OIL	EOILT	SOILT	OILT	MANIFOLD PRESSURE
	161.57	108.61	71.947	27.286

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	249.77	2366.3	29.034

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	98.420	98.393	82.920	95.649

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	93.039	3.9751	54.394	2720.4

CELL TEMP. = 80.302 HEATER TEMP = 108.13 COOLER TEMP = 115.05

720

NASA-LEWIS PRELIMINARY DATA 04/21/76 CADDEII REC 04/21/76 13:40:10.073 FAC SEX15 PGM C003 RDG 3531

CLIMB LEANOUT RE-RUNS 100 DEG. HUM=0% MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.940 RATED HP.= 160.00 HC RATIO= 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	99.654	28.921	189.09	804.17	0.14635	14.578

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	82.055	5.4401	44.594	64.077	63.258	6.0252

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	100.53	2.9666	3.8054	9896.0	0.45348	-20.081

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	0.45348	25.709	1.2739	0.029253	125.43

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.078663	0.078648	1.1741	2429.9	2432.0	259.41	120.02

WET CORRECTION FACTOR = 0.84809 EXHAUST MOLE. WT. = 27.788 EXHAUST DENSITY = 0.071950 EXHAUST FLOW RATE = 12058.

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	1376.5	768.98	6.7537	11.221	0.024662	
CORRECTED CONC. TO WET BASIS			5.7362	9.5168	0.020916	

	HC	NOX	CO
EMISSION RATE	0.59588	1.1034	50.215
EMISSION MASS/MODE	0.049657	0.091951	4.1846
EMISSION MASS/RATED HP	0.00031035	0.00057469	0.026154
MODE EMIS./STD. CYCLE %	16.334	38.313	62.271

CAL.FUEL AIR RATIO = 0.081642 MEAS. FUEL AIR RATIO = 0.078663 DIFF MEAS.& CAL. F/A PERCENT = 3.7876

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	408.57	428.71	449.35	453.72

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1278.9	1250.6	1195.4	2107.3	1312.5	1308.6

ENGINE OIL	EOILT	SOILT	OIL?	MANIFOLD PRESSURE =
	186.84	132.87	72.163	27.443

DYNO COND.	TORQUE	RPM	CYL.BACK PRESSURE =
	243.59	2381.5	29.080

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	99.611	99.654	-8.0432	95.364

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	94.463	1.9918	54.077	1950.0

CELL TEMP. = 83.638

HEATER TEMP = 101.37

COOLER TEMP = 109.78

ORIGINAL PAGE IS  
OF POOR QUALITY

NASA-LEWIS PRELIMINARY DATA 04/21/76 CADDEII REC 04/21/76 13:43:15.212 FAC SEX15 PGM C003 RDG 3532

CLIMB LEANOUT RE-RUNS 100 DEG. HUM=0% MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.940 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	100.11	28.982	188.51	801.17	0.14088	14.570

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	82.451	5.4296	44.584	67.306	63.429	6.0975

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	101.16	2.9663	3.8145	9895.4	0.43195	-20.496

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	0.43195	19.310	1.2309	0.028266	125.59

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.079171	0.079157	1.1817	2430.5	2433.0	259.55	120.12

WET CORRECTION FACTOR = 0.85174 EXHAUST MOLE. WT. = 27.747 EXHAUST DENSITY = 0.071844 EXHAUST FLOW RATE = 12036.

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	1333.2	805.88	6.6177	11.271	0.014521
CORRECTED CONC. TO WET BASIS			5.6366	9.5998	0.012369

	HC	NOX	CO
EMISSION RATE	0.57610	1.1543	49.255
EMISSION MASS/MODE	0.048008	0.095190	4.1045
EMISSION MASS/RATED HP	0.00030005	0.00060119	0.025653
MODE EMIS./STD. CYCLE %	15.792	40.079	61.080

CAL. FUEL AIR RATIO = 0.081348 MEAS. FUEL AIR RATIO = 0.079171 DIFF MEAS. & CAL. F/A PERCENT = 2.7497

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	400.06	421.76	448.08	454.12

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	2104.8	1246.6	1286.3	2149.1	1316.9	1313.5

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	186.57	213.23	72.111	27.367

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	239.98	2350.3	29.083

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	100.11	100.11	11.788	95.422

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	94.862	2.9905	54.109	2361.5

CELL TEMP. = 84.375 HEATER TEMP = 102.62 COOLER TEMP = 108.27

722

NASA-LEWIS PRELIMINARY DATA 04/21/76 CADDEII REC 04/21/76 13:50:14.436 FAC SEX15 PGW C003 RDG 3533

CLIMB LEANOUT RE-RUNS 100 DEG. HUM=0% MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.940 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	98.039	28.973	189.88	806.10	0.14636	14.558

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	80.787	5.4515	44.627	61.475	60.813	6.1281

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEL-POINT
	99.050	2.9239	3.8591	9815.9	0.47443	-20.126

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	0.47440	22.368	1.2710	0.029185	124.82

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.075441	0.075427	1.1260	2432.3	2434.6	258.31	119.63

WET CORRECTION FACTOR = 0.84842 EXHAUST MOLE. WT. = 28.053 EXHAUST DENSITY = 0.072635 EXHAUST FLOW RATE = 11937.

MEASURED CONC.	PART PER MILLION WET	NOX PPM	CO DRY	PER CENT	O2 DRY
	HC PPM	1199.1	5.3938	11.920	0.066807
CORRECTED CONC. TO WET BASIS			4.5762	10.113	0.056680

	HC	NOX	CO
EMISSION RATE	0.48456	1.7034	39.659
EMISSION MASS/MODE	0.040380	0.14195	3.3050
EMISSION MASS/RATED HP	0.00025238	0.00088718	0.020656
MODE EMIS./STD. CYCLE %	13.283	59.145	49.181

CAL. FUEL AIR RATIO = 0.078320 MEAS. FUEL AIR RATIO = 0.075441 DIFF MEAS. & CAL. F/A PERCENT = 3.8166

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	413.29	435.47	444.37	450.18

FXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	FXT-4	SEXT-1	SEXT-2
	1453.4	1266.9	689.15	1947.4	1337.5	1334.5

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 27.516
	186.28	13.094	72.047	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.079
	250.38	2339.6	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	98.057	98.039	-13.735	95.577

ORIFICE AIR	TEMP	DELTA P	ORFP	FLW
	92.813	2.9923	54.465	2366.5

CELL TEMP. = 82.794 HEATER TEMP = 133.09 COOLER TEMP = 115.09

725

NASA-LEWIS PRELIMINARY DATA 04/21/76 CADDEII REC 04/21/76 13:50:37.514 FAC SEX15 PG4 C003 RDG 3534  
 CLIMB LEANOUT RE-RUNS 100 DEG. HUM=0% MODE = 4.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.940 RATED HP. = 160.00 HC RATIO = 2.1250  
 COMB. AIR TEMP 98.333 PRESS 28.901 CFM 189.84 DRY FLOW 805.18 VAPOR FLOW 0.14544 PRESS TOTAL 14.554  
 COMB. FUEL TEMP 80.690 PRESS 5.4533 DENSITY 44.630 TURBO FLOW 61.417 FLOW TRON 60.261 FPIP 6.0378  
 COOLING AIR TEMP 99.369 UDEL-HOOD 2.9862 DEL-HOOD 3.8098 FLOW 9932.6 REL-HUM 0.46765 DEW-POINT -20.191  
 REL-HUM 1 0.46765 2 56.072 HUMIDITY 1.2644 % H2O VAPOR CORRECTED HP 0.029035 125.40  
 ENG. COND. F/A DRY 0.074841 F/A WET 0.074828 EQU. RATIO 1.1170 RPM-1 2433.7 RPM-2 2435.9 TORQUE 259.28 BHP 120.15  
 WET CORRECTION FACTOR = 0.84481 EXHAUST MOLE. WT. = 28.103 EXHAUST DENSITY = 0.072764 EXHAUST FLOW RATE = 11895.  
 MEASURED CONC. PART PER MILLION WET PER CENT  
 HC PPM 1117.5 NOX PPM 1216.2 CO DRY 5.4562 CO2 DRY 11.925 O2 DRY 0.058456  
 CORRECTED CONC. TO WET BASIS 4.6095 10.075 0.049392  
 EMISSION RATE HC 0.47724 NOX 1.7217 CO 39.809  
 EMISSION MASS/MODE 0.039770 0.14347 3.3174  
 EMISSION MASS/RATED HP 0.00024856 0.00089671 0.020734  
 MODE EMISS./STD. CYCLE % 13.082 59.780 49.366  
 CAL. FUEL AIR RATIO = 0.078449 MEAS. FUEL AIR RATIO = 0.074841 DIFF MEAS. & CAL. F/A PERCENT = 4.8209  
 CYL TEMP DEG.F CYL-1 411.51 CYL-2 434.18 CYL-3 445.09 CYL-4 450.92  
 EXT GAS TEMP DEG.F EXT-1 1039.6 EXT-2 1269.1 EXT-3 642.21 EXT-4 1641.6 SEXT-1 1339.2 SEXT-2 1335.8  
 ENGINE OIL EOILT 187.32 SOILT 217.47 OIIP 71.887 MANIFOLD PRESSURE = 27.587  
 DYNO COND. TORQUE 260.76 RPM 2353.8 CYL. BACK PRESSURE = 29.033  
 INDUCTION AIR IAIRT1 98.368 IAIRT2 98.333 TAIRT1 119.63 TAIRT2 95.959  
 ORIFICE AIR TEMP 92.848 DELTAP 2.0300 DRFP 54.639 FLOW 1970.5  
 CELL TEMP. = 82.838 HEATER TEMP = 123.97 COOLER TEMP = 115.00

724

NASA-LEWIS PRELIMINARY DATA 04/21/76 CADDEII REC 04/21/76 14:00:32.408 FAC SEX15 PGM C003 RDG 3536  
 CLIMB LEANOUT RE-RUNS 100 DEG. HUM=0% MODE = 4.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.940 RATED HP. = 140.00 HC RATIO = 2.1250  

COMB. AIR	TEMP 99.058	PRESS 28.997	CFM 191.86	DRY FLOW 815.16	VAPOR FLOW 0.14280	PRESS TOTAL 14.551
COMB. FUEL	TEMP 83.075	PRESS 5.4689	DENSITY 44.568	TURBO FLOW 59.825	FLOW TRON 57.759	FPIP 6.0345
COOLING AIR	TEMP 100.46	UDEL-HOOD 2.9785	DEL-HOOD 3.9217	FLOW 9918.2	REL-HUM 0.44360	DEW-POINT -20.556
REL-HUM	1 0.44360	2 57.468	HUMIDITY 1.2262	% H2O VAPOR 0.028158	CORRECTED HP 125.61	
ENG. COND.	F/A DRY 0.070856	F/A WET 0.070843	EQU. RATIO 1.0575	RPM-1 2427.2	RPM-2 2429.6	TORQUE 260.27 BHP 120.28

 WET CORRECTION FACTOR = 0.84906 EXHAUST MOLE. WT. = 28.442 EXHAUST DENSITY = 0.073643 EXHAUST FLOW RATE = 11855.  

MEASURED CONC.	PART PER MILLION WET HC PPM 750.77	NOX PPM 1901.3	CO DRY 3.8118	PER CENT CO2 DRY 12.605	O2 DRY 0.34729
CORRECTED CONC. TO WET BASIS			3.2364	10.702	0.29488

EMISSION RATE	HC 0.31953	NOX 2.6823	CO 27.856
EMISSION MASS/MODE	0.026628	0.22352	2.3213
EMISSION MASS/RATED HP	0.00016642	0.0013970	0.014508
MODE EMIS./STD. CYCLE %	8.7591	93.135	34.543

 CAL. FUEL AIR RATIO = 0.073907 MEAS. FUEL AIR RATIO = 0.070856 DIFF MEAS. & CAL. F/A PERCENT = 4.3068  

CYL TEMP DEG.F	CYL-1 421.34	CYL-2 447.30	CYL-3 443.90	CYL-4 445.91
EXT GAS TEMP DEG.F	EXT-1 896.78	EXT-2 1273.4	EXT-3 1301.9	EXT-4 2179.5
ENGINE OIL	EOILT 186.65	SOILT 264.04	OTLP 71.771	SEXT-1 1359.3
DYNO COND.	TORQUE 259.83	RPM 2370.7	MANIFOLD PRESSURE = 27.801	SEXT-2 1365.0
INDUCTION AIR	IAIRT1 99.006	IAIRT2 99.058	TAIRT1 175.63	CYL. BACK PRESSURE = 29.062
ORIFICE AIR	TEMP 93.951	DELTAP 1.0972	ORFP 54.365	TAIRT2 94.877

 CELL TEMP. = 85.209 HEATER TEMP = 118.29 COOLER TEMP = 115.39

725

NASA-LEWIS		PRELIMINARY DATA		04/21/76		CADDEII		REC 04/21/76 15:38:59.553		FAC SEX15		PGM C003		RDG 3537					
CLIMB LEANOUT RE-RUNS 100 DEG. HUM=0%				MODE = 4.0000				NO. SCANS = 5											
ENGINE TIMING = 25.000				DEG. °				BAROMETRIC PRESSURE = 28.870				RATED HP. = 160.00				HC RATIO = 2.1250			
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL							
		100.36		28.756		188.54		798.41		0.10044		14.516							
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP							
		85.638		5.4359		44.501		67.917		66.277		6.0591							
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT							
		100.99		3.0709		3.7661		10089.		0.30558		-23.881							
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP									
		0.30558		80.688		0.88061		0.020222		125.34									
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP					
		0.083010		0.083000		1.2390		2429.3		2431.6		259.13		119.86					
WET CORRECTION FACTOR = 0.85172				EXHAUST MOLE. WT. = 27.443				EXHAUST DENSITY = 0.071056				EXHAUST FLOW RATE = 12170.							
MEASURED CONC.		PART PER MILLION WET				PER CENT													
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY									
		1508.0		634.26		8.3407		10.772		0.11157									
CORRECTED CONC. TO WET BASIS						7.1039		9.1750		0.095027									
EMISSION RATE		HC		NOX		CO													
		0.65889		0.91859		62.768													
EMISSION MASS/MODE		0.054908		0.076549		5.2307													
EMISSION MASS/RATED HP		0.00034317		0.00047843		0.032692													
MODE EMIS./STD. CYCLE %		18.062		31.895		77.837													
CAL.FUEL AIR RATIO = 0.084592				MEAS. FUEL AIR RATIO = 0.083010				DIFF MEAS.& CAL. F/A PERCENT = 1.9056											
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4											
		382.47		403.06		440.46		444.08											
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2							
		1198.0		1101.6		1061.2		1746.1		1248.0		1241.0							
ENGINE OIL		EOILT		SOILT		OILP		MANIFOLD PRESSURE = 27.188											
		163.10		324.41		71.803													
DYNO COND.		TORQUE		RPM		CYL.BACK PRESSURE = 28.827													
		271.00		2364.4															
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2											
		100.32		100.36		-60.832		95.391											
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW											
		94.576		1.0669		54.396		1440.7											
CELL TEMP. = 87.250				HEATER TEMP = 112.95				COOLER TEMP = 113.87											

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NASA-LEWIS PRELIMINARY DATA 04/21/76 CADDEN REC 04/21/76 15:39:20.028 FAC SEX15 PGM C003 RDG 3538

CLIMB LEANOUT RE-RUNS 100 DEG. HUM=0% MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.870 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	100.48	28.846	188.34	797.44	0.10066	14.518

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	85.603	5.4323	44.502	67.850	65.938	6.0012

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	101.06	2.9973	3.9172	9953.2	0.30557	-23.851

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	0.30557	38.410	0.88363	0.020291	125.55

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.082686	0.082676	1.2341	2431.4	2432.7	259.31	120.05

WET CORRECTION FACTOR = 0.85016 EXHAUST MOLE. WT. = 27.468 EXHAUST DENSITY = 0.071122 EXHAUST FLOW RATE = 12140.

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	1515.3	635.58	8.3568	10.795	0.11651	
CORRECTED CONC. TO WET BASIS			7.1047	9.1777	0.099054	

	HC	NOX	CO
EMISSION RATE	0.66043	0.91827	62.622
EMISSION MASS/MODE	0.055036	0.076522	5.2185
EMISSION MASS/RATED HP	0.00034397	0.00047826	0.032616
MODE EMIS./STD. CYCLE %	18.104	31.884	77.657

CAL. FUEL AIR RATIO = 0.084576 MEAS. FUEL AIR RATIO = 0.082686 DIFF MEAS. & CAL. F/A PERCENT = 2.2859

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	382.27	403.25	440.78	444.59

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1557.1	1042.7	1038.3	1399.9	1250.7	1244.6

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 27.292
	164.22	147.10	71.531	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.068
	246.55	2350.5	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	100.47	100.48	-115.56	95.558

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	94.602	1.0540	54.339	1432.1

CELL TEMP. = 87.538 HEATER TEMP = 115.15 COOLER TEMP = 114.22

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NASA-LEWIS PRELIMINARY DATA 04/21/76 CADDEII REC 04/21/76 16:35:28.386 FAC SEX15 PGM C003 RDG 3541

IDLE LEANOUT RE-RUNS 59 DEG. HUM=0% MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.870 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP 61.836	PRESS 28.870	CFM 12.073	DRY FLOW 53.784	VAPOR FLOW 0.010431	PRESS TOTAL 14.179
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COMB. FUEL	TEMP 85.805	PRESS 5.8350	DENSITY 44.497	TURBO FLOW 3.9462	FLOW TRON 3.3333	FPIP 6.1836
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COOLING AIR	TEMP 69.324	UDEL-HOOD -0.016329	DEL-HOOD 0.82391	FLOW 0.00000	REL-HUM 1.6158	DEW-POINT -19.641
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REL-HUM	1 1.6158	2 70.973	HUMIDITY 1.3577	% H2O VAPOR 0.031176	CORRECTED HP 0.46953
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ENG. COND.	F/A DRY 0.061977	F/A WET 0.061965	EQU. RATIO 0.92503	RPM-1 623.15	RPM-2 623.58	TORQUE 3.9534	BHP 0.46872
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WET CORRECTION FACTOR = 0.85889 EXHAUST MOLE. WT. = 28.832 EXHAUST DENSITY = 0.074653 EXHAUST FLOW RATE = 765.24

MEASURED CONC.	PART PER MILLION WET		CD DRY 1.2963	PER CENT	
	HC PPM 10420.	NOX PPM 35.910		CO2 DRY 12.207	O2 DRY 3.8960
CORRECTED CONC. TO WET BASIS			1.1264	10.606	3.3852

EMISSION RATE EMISSION MASS/MODE EMISSION MASS/RATED HP MODE EMIS./STD. CYCLE %	HC	NOX	CO
	0.28626	0.0032700	0.62577
	0.0047710	5.4501E-05	0.010429
	2.9819E-05	3.4063F-07	6.5184E-05
	1.5694	0.022709	0.15520

CAL. FUEL AIR RATIO = 0.063544 MEAS. FUEL AIR RATIO = 0.061977 DIFF MEAS. & CAL. F/A PERCENT = 2.5282

CYL TEMP DEG.F	CYL-1 253.37	CYL-2 285.81	CYL-3 279.65	CYL-4 291.54
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EXT GAS TEMP DEG.F	EXT-1 1420.1	EXT-2 543.67	EXT-3 -61.140	EXT-4 1443.9	SEXT-1 755.36	SEXT-2 752.16
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ENGINE OIL	EOILT 166.10	SOILT 294.48	OILT 45.945	MANIFOLD PRESSURE = 11.258
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DYNO COND.	TORQUE 3.3555	RPM 621.60	CYL. BACK PRESSURE = 28.875
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INDUCTION AIR	IAIRT1 60.393	IAIRT2 61.836	TAIRT1 -127.28	TAIRT2 55.671
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ORIFICE AIR	TEMP 93.535	DELTAP 3.3752	ORF 54.127	FLOW 2507.2
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CELL TEMP. = 84.560 HEATER TEMP = 93.851 COOLER TEMP = 52.231

728

NASA-LEWIS PRELIMINARY DATA 04/21/76 CADDEIT REC 04/21/76 16:39:11.825 FAC SEX15 PGM C003 RDG 3542

IDLE LEANOUT RE-RUNS 59 DEG. HUM=0% MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.870 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP 62.466	PRESS 28.869	CFM 11.912	DRY FLOW 53.073	VAPOR FLOW 0.0098276	PRESS TOTAL 14.180
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COMB. FUEL	TEMP 86.392	PRESS 5.8368	DENSITY 44.482	TURBO FLOW 3.9466	FLOW TRON 3.2973	FPIP 6.1716
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COOLING AIR	TEMP 69.904	UDEL-HOOD -0.048433	DEL-HOOD 0.87455	FLOW 0.00000	REL-HUM 1.5088	DEW-POINT -20.205
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REL-HUM	1 1.5088	2 66.739	HUMIDITY 1.2962	% H2O VAPOR 0.029765	CORRECTED HP 0.69175
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ENG. COND.	F/A DRY 0.062128	F/A WET 0.062116	EQU. RATIO 0.92728	RPM-1 606.60	RPM-2 606.84	TORQUE 5.9756	BHP 0.69017
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WET CORRECTION FACTOR = 0.86575 EXHAUST MOLE. WT. = 28.831 EXHAUST DENSITY = 0.074650 EXHAUST FLOW RATE = 755.27

MEASURED CONC.	PART PER MILLION WET			PER CENT	
	HC PPM 11850.	NOX PPM 39.432	CO DRY 1.4391	CO2 DRY 12.055	O2 DRY 3.9724
CORRECTED CONC. TO WET BASIS			1.2459	10.436	3.4391

EMISSION RATE EMISSION MASS/MODE EMISSION MASS/RATED HP MODE EMIS./STD. CYCLE %	HC	NOX	CO
	0.32131	0.0035440	0.68315
	0.0053551	5.3067E-05	0.011386
	3.3469E-05	3.6917E-07	7.1161E-05
	1.7615	0.024611	0.16943

CAL. FUEL AIR RATIO = 0.064329 MEAS. FUEL AIR RATIO = 0.062128 DIFF MEAS. & CAL. F/A PERCENT = 3.5439

CYL TEMP DEG. F	CYL-1 249.89	CYL-2 284.37	CYL-3 278.95	CYL-4 292.32
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FXT GAS TEMP DEG. F	EXT-1 1543.6	EXT-2 361.87	EXT-3 -428.65	EXT-4 1213.2	SEXT-1 722.32	SEXT-2 719.59
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ENGINE OIL	EOILT 164.44	SOILT 363.09	OILP 45.893	MANIFOLD PRESSURE = 11.377
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DYNO COND.	TORQUE 4.4860	RPM 599.52	CYL. BACK PRESSURE = 29.072
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INDUCTION AIR	IAIRT1 61.061	IAIRT2 62.466	TAIRT1 -80.166	TAIRT2 55.634
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ORIFICE AIR	TEMP 94.134	DELTAP 3.3152	ORFP 54.421	FLOW 2483.9
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CELL TEMP. = 84.928 HEATER TEMP = 93.948 COOLER TEMP = 52.204

729

NASA-LEWIS PRELIMINARY DATA 04/21/76 CADDEII REC 04/21/76 16:39:33.466 FAC SEX15 PGM C003 RDG 3543

IDLE LEANOUT RE-RUNS 59 DEG. HUM=0% MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.870 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP 62.574	PRESS 28.868	CFM 11.642	DRY FLOW 51.881	VAPOR FLOW 0.0095102	PRESS TOTAL 14.180
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COMB. FUEL	TEMP 86.620	PRESS 5.8380	DENSITY 44.476	TURBO FLOW 3.9427	FLOW TRCN 3.2673	FPIP 6.1785
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COOLING AIR	TEMP 69.949	UDEL-HOOD -0.026845	DEL-HOOD 0.81643	FLOW 0.00000	REL-HUM 1.4880	DEW-POINT -20.326
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REL-HUM	1 1.4880	2 48.353	HUMIDITY 1.2831	% H2O VAPOR 0.029465	CORRECTED HP 0.30813
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ENG. COND.	F/A DRY 0.062977	F/A WET 0.062965	EQU. RATIO 0.93995	RPM-1 597.90	PPM-2 599.94	TORQUE 2.7003	BHP 0.30740
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WET CORRECTION FACTOR = 0.87407 EXHAUST MOLE. WT. = 28.820 EXHAUST DENSITY = 0.074622 EXHAUST FLOW RATE = 739.17

MEASURED CONC.	HC PPM 12174.	NOX PPM 36.628	CO DRY 1.3898	PER CENT CO2 DRY 11.968	O2 DRY 4.1210
CORRECTED CONC. TO WET BASIS			1.2148	10.461	3.6020

EMISSION RATE	HC 0.32306	NOX 0.0032218	CO 0.65191
EMISSION MASS/MODE	0.0053843	5.3697E-05	0.010865
EMISSION MASS/RATED HP	3.3652E-05	3.3560E-07	6.7907E-05
MODE EMISS./STD. CYCLE %	1.7711	0.022374	0.16168

CAL. FUEL AIR RATIO = 0.063917 MEAS. FUEL AIR RATIO = 0.062977 DIFF MEAS. & CAL. F/A PERCENT = 1.4926

CYL TEMP DEG.F	CYL-1 238.95	CYL-2 277.28	CYL-3 271.80	CYL-4 284.80
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EXT GAS TEMP DEG.F	EXT-1 1868.3	EXT-2 237.47	EXT-3 -454.00	EXT-4 712.99	SEXT-1 709.37	SEXT-2 736.28
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ENGINE OIL	EOILT 163.87	SOILT 97.643	OILP 45.777	MANIFOLD PRESSURE = 11.611
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DYNO COND.	TORQUE 4.3924	RPM 595.86	CYL. BACK PRESSURE = 28.990
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INDUCTION AIR	IAIRT1 61.160	IAIRT2 62.574	TAIRT1 -27.852	TAIRT2 55.555
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ORIFICE AIR	TEMP 94.264	DELTAP 3.3214	ORFP 54.282	FLOW 2485.9
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CELL TEMP. = 84.955 HEATER TEMP = 93.927 COOLER TEMP = 52.213

730

NASA-LEWIS PRELIMINARY DATA 04/21/76 CADDEII REC 04/21/76 16:46:37.518 FAC SEX15 PGM C003 RDG 3545

IDLE LEANOUT RE-RUNS 59 DEG. HUM=0% MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.870 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP 63.635	PRESS 28.868	CFM 10.204	DRY FLOW 45.474	VAPOR FLOW 0.0088208	PRESS TOTAL 14.177
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COMB. FUEL	TEMP 87.390	PRESS 5.8020	DENSITY 44.455	TURBO FLOW 3.9460	FLOW TRON 4.0804	FPIP 6.1623
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COOLING AIR	TEMP 70.618	UDEL-HOOD -0.030167	DEL-HOOD 0.87345	FLOW 0.00000	REL-HUM 1.5166	DEW-POINT -19.641
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REL-HUM	1 1.5166	2 35.314	HUMIDITY 1.3578	% H2O VAPOR 0.031180	CORRECTED HP 0.55487
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ENG. COND.	F/A DRY 0.089731	F/A WET 0.089713	EQU. RATIO 1.3393	RPM-1 609.24	RPM-2 609.24	TORQUE 4.7671	BHP 0.55300
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WET CORRECTION FACTOR = 0.87912 EXHAUST MOLE. WT. = 26.936 EXHAUST DENSITY = 0.069745 EXHAUST FLOW RATE = 710.63

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	21206.	14.104	8.2042	8.8968	2.3996
CORRECTED CONC. TO WET BASIS			7.2125	7.8214	2.1096

	HC	NOX	CO
EMISSION RATE	0.54100	0.3011927	3.7210
EMISSION MASS/MODE	0.0090167	1.9879E-05	0.062017
EMISSION MASS/RATED HP	5.6354E-05	1.2424E-07	0.00038761
MODE EMIS./STD. CYCLE %	2.9660	0.0082829	0.92288

CAL. FUEL AIR RATIO = 0.089530 MFAS. FUEL AIR RATIO = 0.089731 DIFF MEAS. & CAL. F/A PERCENT = -1.3387

CYL TEMP DEG. F	CYL-1 262.84	CYL-2 279.90	CYL-3 267.60	CYL-4 280.12
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EXT GAS TEMP DEG. F	EXT-1 1411.1	EXT-2 -116.60	EXT-3 -135.43	EXT-4 621.99	SEXT-1 688.25	SEXT-2 684.65
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ENGINE OIL	EOILT 161.28	SOILT -15.771	OILP 46.049	MANIFOLD PRESSURE = 10.482
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DYNO COND.	TORQUE 9.2385	RPM 603.66	CYL. BACK PRESSURE = 28.902
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INDUCTION AIR	IAIRT1 52.196	IAIRT2 63.635	TAIRT1 -28.486	TAIRT2 55.453
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ORIFICE AIR	TEMP 95.408	DELTAP 3.2994	ORFP 54.403	FLOW 2475.3
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CELL TEMP. = 85.840 HEATER TEMP = 93.996 COOLER TEMP = 52.231

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NASA-LEWIS PRELIMINARY DATA 04/21/76 CADDEII REC 04/21/76 16:55:55.021 FAC SEX15 PGM C003 RDG 3549

IDLE LEANOUT RE-RUNS, 59 DEG. HUM=0% MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.870 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	61.331	28.867	10.059	44.820	0.0090299	14.179

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPI/P.
	84.972	5.8410	44.518	3.9482	3.1473	6.1665

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	68.583	-0.032381	0.84162	0.00000	1.7086	-19.161

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	1.7086	45.363	1.4103	0.032385	0.89481

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.070221	0.070207	1.0481	571.80	576.00	8.2091	0.89375

WET CORRECTION FACTOR = 0.88575 EXHAUST MOLE. WT. = 28.497 EXHAUST DENSITY = 0.073786 EXHAUST FLOW RATE = 650.21

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	11261.	34.907	2.3443	12.036	3.1715
CORRECTED CONC. TO WET BASIS			2.0765	10.661	2.8092

EMISSION RATE	HC	NOX	CO
EMISSION MASS/MODE	0.26286	0.3027010	0.98021
EMISSION MASS/RATED HP	0.0043810	4.5016E-05	0.016337
MODE EMISS./STD. CYCLE %	2.7382E-05	2.8135E-07	0.00010210
	1.4411	0.318757	0.24311

CAL. FUEL AIR RATIO = 0.067922 MEAS. FUEL AIR RATIO = 0.070221 DIFF MEAS. & CAL. F/A PERCENT = -3.2740

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	255.31	288.99	279.01	290.88

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1566.3	103.91	-429.60	568.57	701.11	699.01

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE =
	162.39	117.95	45.485	11.153

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE =
	4.5797	572.46	29.098

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	59.897	61.331	138.02	55.565

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	93.630	3.3308	54.528	2490.7

CELL TEMP. = 82.996 HEATER TEMP = 94.093 COOLER TEMP = 52.76

NASA-LEWIS PRELIMINARY DATA 04/21/76 CADDEII REC 04/21/76 16:59:13.956 FAC SEX15 PGM C003 R0G 3550

IDLE LEANOUT RE-RUNS 59 DEG. HUM=0% MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.870 RATED HP.= 160.00 HC RATIO= 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	61.646	28.868	10.514	47.307	0.0093110	14.180

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	85.270	5.8401	44.511	3.9509	3.1383	6.1800

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	69.244	-0.047326	0.81367	0.00000	1.6508	-19.456

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	1.6508	38.806	1.3777	0.031638	0.60181

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.066343	0.066327	0.99014	600.12	601.80	5.2589	0.60090

WET CORRECTION FACTOR = 0.85825 EXHAUST MOLE. WT. = 28.717 EXHAUST DENSITY = 0.074356 EXHAUST FLOW RATE = 678.55

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	O2 DRY
	10962.	32.555	2.6939	11.941
CORRECTED CONC. TO WET BASIS			2.3120	10.248

	HC	NOX	CO
EMISSION RATE	0.26704	0.0026288	1.1390
EMISSION MASS/MODE	0.0044506	4.3813E-05	0.018983
EMISSION MASS/RATED HP	2.7816E-05	2.7383E-07	0.00011864
MODE EMIS./STD. CYCLE %	1.4640	0.018255	0.28248

CAL.FUEL AIR RATIO = 0.069057 MEAS. FUEL AIR RATIO = 0.066340 DIFF MEAS.& CAL. F/A PERCENT = 4.1113

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	275.09	308.70	297.24	312.81

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1288.7	-230.50	-331.66	1272.9	736.46	734.75

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	162.97	219.59	45.561	10.790

DYNO COND.	TORQUE	RPM	CYL.BACK PRESSURE
	6.5022	596.70	29.126

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	60.231	61.646	118.29	55.496

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	94.160	3.3014	54.555	2478.8

CELL TEMP. = 84.103 HEATER TEMP = 94.114 COOLER TEMP = 52.303

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NASA-LEWIS PRELIMINARY DATA 04/21/76 CADDEII REC 04/21/76 16:59:35.180 FAC SEX15 PGM C003 RDG 3551

IDLE LEANOUT RE-RUNS 59 DEG. HUM=0% MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.870 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	61.727	28.856	10.360	46.171	0.0090679	14.177

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	85.586	5.8332	44.503	3.9450	3.2343	6.1647

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	69.190	-0.037362	0.83885	0.00000	1.6422	-19.486

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	1.6422	54.727	1.3748	0.031569	0.53525

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.070050	0.070036	1.0455	623.64	624.96	4.5004	0.53440

WET CORRECTION FACTOR = 0.86440 EXHAUST MOLE. WT. = 28.512 EXHAUST DENSITY = 0.073824 EXHAUST FLOW RATE = 669.36

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM	CO DRY
	9941.0	3.2412
	NOX PPM	CO2 DRY
	32.641	12.002
		O2 DRY
		2.5017
CORRECTED CONC. TO WET BASIS		
		10.374
		2.1625

EMISSION RATE	HC	NOX	CO
	0.23888	0.0026000	1.3615
EMISSION MASS/MODE	0.0039813	4.3333E-05	0.022692
EMISSION MASS/RATED HP	2.4883E-05	2.7083E-07	0.00014182
MODE EMIS./STD. CYCLE %	1.3096	0.018055	0.33767

CAL. FUEL AIR RATIO = 0.071062 MEAS. FUEL AIR RATIO = 0.070050 DIFF MEAS. & CAL. F/A PERCENT = 1.4439

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	263.23	299.40	287.23	302.15

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1329.6	-454.00	-454.00	637.12	722.07	720.53

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	162.70	22.550	45.997	10.435

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	3.0675	611.34	28.875

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	60.330	61.727	187.88	55.405

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	94.212	3.3106	54.540	2482.1

CELL TEMP. = 84.174 HEATER TEMP = 94.107 COOLER TEMP = 52.240

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NASA-LEWIS		PRELIMINARY DATA		04/22/76	CADDET I	REC 04/21/76 18:34:37.177		FAC SEX15	PGM C003	RDG 3552
CLIMB LEANOUT RE-RUNS 59 DEG HUM = 60 %				MODE = 4.0000		NO. SCANS = 5				
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 28.890		RATED HP. = 160.00		HC RATIO = 2.1250		
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL				
	58.687	28.752	174.43	785.65	5.2661	14.470				
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP				
	78.466	5.3990	44.588	64.303	63.609	5.0987				
COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT				
	61.890	2.9419	3.7301	9849.8	63.084	46.176				
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP					
	63.084	78.366	46.920	1.0774	120.85					
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP			
	0.080964	0.080425	1.2084	2429.6	2431.6	258.13	119.41			
WET CORRECTION FACTOR = 0.84508		EXHAUST MOLE. WT. = 27.604		EXHAUST DENSITY = 0.071473		EXHAUST FLOW RATE = 11955.				
MEASURED CONC.	PART PER MILLION WET	NOX PPM		CO DRY	PER CENT	CO2 DRY				
	1406.9	640.12		7.1387	11.514	0.11591				
CORRECTED CONC. TO WET BASIS				6.0328	9.7300	0.097955				
EMISSION RATE	HC	NOX	CO							
	0.60388	0.91074	52.365							
EMISSION MASS/MODE	0.050324	0.075895	4.3637							
EMISSION MASS/RATED HP	0.00031452	0.00047434	0.027273							
MODE EMISS./STD. CYCLE %	16.554	31.623	64.936							
CAL. FUEL AIR RATIO = 0.081659		MEAS. FUEL AIR RATIO = 0.080964		DIFF MEAS. & CAL. F/A PERCENT = 0.85825						
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4						
	354.74	371.91	395.65	400.81						
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2				
	1058.3	-75.276	-337.80	1395.2	1272.7	1267.2				
ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 26.452						
	154.47	180.04	72.591							
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 28.914							
	236.62	2343.7								
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2						
	58.343	58.687	-68.338	55.117						
ORIFICE AIR	TEMP	DELTAP	ORIF	FLOW						
	94.906	2.8829	54.484	2320.4						
CELL TEMP. = 83.023	HEATER TEMP = 99.309		COOLER TEMP = 51.546							

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CFLI TEMP. = 83.260      HEATER TEMP = 98.593      COOLER TEMP = 51.140

NASA-LEWIS PRELIMINARY DATA 04/22/76 CADDEII REC 04/21/76 18:39:46.682 FAC SEX15 PSM C003 RDG 3554

CLIMB LFANOUT RE-RUNS 59 DEG HUM = 60 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.890 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.518	28.930	173.46	782.49	5.2522	14.497

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	78.978	5.3927	44.675	66.770	62.925	6.0189

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT
	62.475	2.9486	3.7365	9862.3	61.433	46.261

RFL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	61.433	50.611	46.985	1.0789	121.48

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.080416	0.079880	1.2007	2430.1	2432.9	259.18	119.93

WET CORRECTION FACTOR = 0.84229 EXHAUST MOL. WT. = 27.647 EXHAUST DENSITY = 0.071585 EXHAUST FLOW RATE = 11883.

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1469.5	581.04	7.1167	11.498	0.077788
CORRECTED CONC. TO WET BASIS			5.9943	9.6842	0.065519

	HC	NOX	CO
EMISSION RATE	0.62692	0.92165	51.714
EMISSION MASS/MODE	0.052244	0.068471	4.3095
EMISSION MASS/RATED HP	0.00032652	0.00042794	0.026934
MODE EMIS./STD. CYCLE %	17.185	28.530	64.130

CAL. FUEL AIR RATIO = 0.081806 MEAS. FUEL AIR RATIO = 0.080416 DIFF MEAS. & CAL. F/A PERCENT = 1.7283

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	355.63	374.83	397.57	404.81

FXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	FXT-4	SEXT-1	SEXT-2
	928.34	-382.62	-454.00	1489.1	1290.0	1286.3

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	166.40	-11.133	73.527	26.306

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	243.61	2343.2	28.960

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	59.121	59.518	27.556	55.262

ORIFICE AIR	TEMP	DELTA P	ORIF. FLOW
	95.443	2.9636	54.550

CELL TEMP. = 93.992 HEATER TEMP = 95.837 COOLER TEMP = 49.544

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NASA-LEWIS		PRELIMINARY DATA		04/22/76	CADDET1	REC 04/21/76 18:42:54.141		FAC SEX15	PGM C003	RDG 3555
CLIMB LEANOUT RE-RUNS 59 DEG HUM = 60 %				MODE = 4.0000		NO. SCANS = 5				
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 28.890			RATED HP. = 160.00		HC RATIO = 2.1250		
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL				
	59.969	28.855	172.49	777.72	5.2347	14.490				
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP				
	79.534	5.4203	44.560	63.928	61.341	5.0513				
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT				
	62.961	2.8871	3.8082	9746.3	60.589	46.321				
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP					
	60.589	28.899	47.116	1.0820	120.63					
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP			
	0.078873	0.078346	1.1772	2429.9	2432.3	257.24	119.02			
WET CORRECTION FACTOR = 0.84955		EXHAUST MOLE. WT. = 27.771		EXHAUST DENSITY = 0.071906		EXHAUST FLOW RATE = 11741.				
MEASURED CONC.	PART PER MILLION WET		PER CENT		738					
	HC PPM	NOX PPM	CO DRY	CO2 DRY						
	1266.7	848.08	5.7995	12.210	0.089269					
CORRECTED CONC. TO WET BASIS			4.9212	10.361	0.075749					
EMISSION RATE		HC	NOX	CO						
		0.53396	1.1850	41.950						
EMISSION MASS/MODE		0.044496	0.099749	3.4958						
EMISSION MASS/RATED HP		0.00027810	0.00051718	0.021849						
MODE FMIS./STD. CYCLE %		14.637	41.145	52.021						
CAL. FUEL AIR RATIO = 0.078773		MEAS. FUEL AIR RATIO = 0.078873		DIFF MEAS. & CAL. F/A PERCENT = -0.12771						
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4						
	365.41	383.96	400.85	406.35						
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2				
	1453.5	-306.78	-454.00	1508.8	1313.4	1310.2				
ENGINE OIL	EOILT	SOILT	OILT	MANIFOLD PRESSURE = 26.469						
	172.14	148.07	73.127							
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 28.961							
	245.49	2386.1								
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2						
	59.563	59.969	111.42	55.271						
ORIFICE AIR	TEMP	DELTAP	ORIF	FLOW						
	95.712	2.9532	54.372	2345.6						
CELL TEMP. = 84.744		HEATER TEMP = 95.314		COOLER TEMP = 49.553						

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NASA-LEWIS PPELIMINARY DATA 04/22/76 CADDEII RFC 04/21/76 18:45:51.600 FAC SEX15 PGM C003 RDG 3556

CLIMB LEANOUT RE-RUNS 59 DEG HUM = 60 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.890 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PPRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	59.834	28.914	172.67	779.73	5.2533	14.490

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	80.081	5.4305	44.646	60.005	57.861	6.3279

COOLING AIR	TEMP	UNEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	63.006	2.9156	3.7490	9800.3	60.941	46.346

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	60.941	27.341	47.161	1.0830	120.28

ENG. COND.	F/A DRY	F/A WET	FOLL. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.074206	0.073709	1.1075	2430.5	2432.3	256.48	118.69

WET CORRECTION FACTOR = 0.84233 EXHAUST MOLE WT. = 28.156 EXHAUST DENSITY = 0.072903 EXHAUST FLOW RATE = 11561.

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	1046.9	12.979
NOX PPM	1206.1	10.932
CO DRY	4.3938	0.15122
CO2 DRY	3.7010	0.12737

CORRECTED CONC. TO WET BASIS

EMISSION RATE	HC	NOX	CO
	0.43452	1.6594	31.064
EMISSION MASS/MODE	0.036210	0.13828	2.5887
EMISSION MASS/RATED HP	0.00022631	0.00086425	0.016179
MODE EMIS./STD. CYCLE %	11.911	57.617	38.522

CAL. FUEL AIR RATIO = 0.075522 MEAS. FUEL AIR RATIO = 0.074206 DIFF MEAS. & CAL. F/A PERCENT = 1.7739

CYL TEMP. DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	376.28	393.12	404.29	405.42

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1869.3	-287.04	-454.00	1553.1	1342.7	1338.9

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE
	177.55	197.08	72.783	26.636

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE
	263.17	2398.6	29.104

INDUCTION AIR	TAIPT1	TAIPT2	TAIRT1	TAIRT2
	59.419	59.834	144.91	54.482

ORIFICE AIR	TEMP	DELTA P	ORF	FLOW
	95.998	2.9831	54.462	2356.3

CELL TEMP. = 85.603 HEATER TEMP = 94.983 COOLER TEMP = 45.995

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NASA-LEWIS PRELIMINARY DATA 04/22/76 CADDEII REC 04/21/76 18:49:24.834 FAC SEX15 PGM C003 RDG 3557

CLIMB LEANOUT RE-RUNS 59 DEG HUM = 60 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 28.890 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	57.973	28.864	177.00	800.17	5.4285	14.514

COMB. FUEL	TEMP	PRESS	DENSITY	TUBO FLOW	FLOW TRON	FPIP
	79.625	5.4386	44.684	57.798	57.045	6.0381

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	61.295	2.9940	3.7717	9947.1	65.695	46.571

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	65.695	69.319	47.489	1.0905	120.38

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.071291	0.070811	1.0640	2428.1	2430.5	257.44	119.02

WET CORRECTION FACTOR = 0.84449 EXHAUST MOLE. WT. = 28.404 EXHAUST DENSITY = 0.073546 EXHAUST FLOW RATE = 11729.

MEASURED CONC.	HC PPM	NOX PPM	CO DRY	PER CENT CO2 DRY	O2 DRY
	733.87	1708.1	3.3506	13.358	0.39956
CORRECTED CONC. TO WET BASIS			2.8295	11.281	0.33742

EMISSION RATE	HC	NOX	CO
	0.30902	2.3841	24.095
EMISSION MASS/MODE	0.025752	0.19867	2.0079
EMISSION MASS/RATED HP	0.00016095	0.0012417	0.012549
MODE EMIS./STD. CYCLE %	8.4709	82.781	29.879

CAL. FUEL AIR RATIO = 0.072576 MEAS. FUEL AIR RATIO = 0.071291 DIFF MEAS. & CAL. F/A PERCENT = 1.8024

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	382.92	399.22	400.84	391.56

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1457.8	-278.84	-405.12	1779.3	1377.4	1373.3

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	183.73	306.42	72.455	26.932

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	277.80	2342.5	29.027

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	57.592	57.973	153.04	54.701

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	94.194	2.9863	54.463	2361.3

CYLL TEMP. = 83.901 HEATER TEMP = 94.665 COOLER TEMP = 47.974

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NASA-LEWIS		PRELIMINARY DATA		04/22/76	CADDEII	REC 04/22/76 15:49:19.154	FAC SEX15	PGM C003	RDG 3561
APPROACH LFANOUT RE-RUNS 50 DEG. HUM=30%				MODE = 5.0000		NJ. SCANS = 5			
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.000		RATED HP. = 160.00		HC RATIO = 2.1250	
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL			
	49.868	28.996	104.50	479.64	1.1689	14.364			
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP			
	80.910	5.5659	44.624	41.884	40.551	6.0825			
COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT			
	52.311	3.0250	3.9225	10004.	31.634	23.323			
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP				
	31.634	69.579	17.060	0.39175	64.402				
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP		
	0.084753	0.084547	1.2550	2349.9	2352.8	144.95	64.857		
WET CORRECTION FACTOR = 0.85382		EXHAUST MOLE. WT. = 27.309		EXHAUST DENSITY = 0.070708		EXHAUST FLOW RATE = 7374.8			
MEASURED CONC.	PART PER MILLION WET		PER CENT						
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY				
	1785.6	206.04	8.3247	11.391	0.16162				
CORRECTED CONC. TO WET BASIS			7.1077	9.7262	0.13799				
EMISSION RATE	HC	NOX	CO						
	0.47274	0.18082	38.056						
EMISSION MASS/MODE	0.047274	0.018082	3.8056						
EMISSION MASS/RATED HP	0.00029546	0.00011301	0.023785						
MODE EMIS./STD. CYCLE %	15.551	7.5342	56.630						
CAL. FUEL AIR RATIO = 0.083752		MEAS. FUEL AIR RATIO = 0.084753		DIFF MEAS. & CAL. F/A PERCENT = -1.1807					
CYL TEMP DEG.F.	CYL-1	CYL-2	CYL-3	CYL-4					
	302.81	316.80	308.04	310.48					
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2			
	465.83	-207.76	479.04	1550.8	1015.5	1011.4			
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.208					
	142.09	139.65	73.355						
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.050						
	147.00	2293.5							
INDUCTION AIR	IAIRT1	IAIPT2	TAIRT1	TAIRT2					
	49.302	49.868	-88.958	45.191					
ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW					
	94.966	1.0457	55.058	1426.0					
CFLT TEMP. =	82.345	HEATER TEMP = 93.244		COOLER TEMP = 38.664					

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NASA-LEWIS PRELIMINARY DATA 04/22/76 CADDEII REC 04/22/76 16:49:39.328 FAC SEX15 PGM C003 RDG 3562

APPROACH LEANOUT. RE-RUNS 50 DEG. HUM=30% MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.000 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	49.941	28.999	104.33	478.80	1.1664	14.362

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	81.069	5.5721	44.620	45.162	41.329	6.1110

COOLING AIR	TEMP	UNFL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	52.338	3.0939	3.9491	10131.	31.531	23.313

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	31.531	36.102	17.052	0.39158	65.249

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.086319	0.086109	1.2883	2350.5	2353.1	145.81	65.704

WET CORRECTION FACTOR = 0.85174 EXHAUST MOLE WT. = 27.190 EXHAUST DENSITY = 0.070400 EXHAUST FLOW RATE = 7404.7

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	1732.3	207.10	8.2064	11.415	0.17142	
CORRECTED CONC. TO WET BASIS			7.0717	9.8369	0.14772	

	HC	NOX	CO
EMISSION RATE	0.46049	0.18249	38.016
EMISSION MASS/MODE	0.046049	0.018249	3.8016
EMISSION MASS/RATED HP	0.00028780	0.00011405	0.023760
MODE EMIS./STD. CYCLE %	15.148	7.6037	56.571

CAL. FUEL AIR RATIO = 0.083467 MEAS. FUEL AIR RATIO = 0.086319 DIFF MEAS. & CAL. F/A PERCENT = -3.3036

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	302.69	316.34	307.99	310.09

FXT GAS TEMP DEG.F	FXT-1	FXT-2	FXT-3	FXT-4	SEXT-1	SEXT-2
	1471.3	-244.67	443.10	1055.1	1016.6	1012.8

ENGINE OIL	OILT	SOILT	OILP	MANIFOLD PRESSURE = 10.226
	142.58	101.57	73.459	

DYNO COND.	TORQUE	RPM	CYL. RACK PRESSURE = 29.051
	147.97	2299.1	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	49.375	49.941	-32.385	45.204

ORIFICE AIR	TEMP	DELTA P	DIFF	FLOW
	95.018	1.0335	55.002	1417.8

CFLI TEMP. = 32.583 HEATER TEMP = 93.258 COOLER TEMP = 38.673

NASA-LEWIS		PRELIMINARY DATA		04/22/76	CADDEII	REC 04/22/76 16:54:53.941	FAC SEX15	PGM C003	RDG 3563
APPROACH LEANOUT RE-RUNS 50 DEG. HUM=30%				MODE = 5.0000		NO. SCANS = 5			
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.000		RATED HP. = 150.00		HC RATIO = 2.1250	
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL			
	50.224	28.993	103.31	473.99	1.1343	14.360			
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP			
	81.993	5.5602	44.596	41.394	39.115	6.0873			
COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT			
	52.302	3.0225	3.9341	10000.	30.647	22.978			
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP				
	30.647	57.964	16.751	0.38467	64.944				
ENG. CO-O.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP		
	0.082522	0.082325	1.2317	2350.2	2353.0	145.10	65.377		
WET CORRECTION FACTOR = 0.85928			EXHAUST MOLE. WT. = 27.481		EXHAUST DENSITY = 0.071155		EXHAUST FLOW RATE = 7227.1		
MEASURED CONC.	PART PER MILLION WET		PPM CFMT						
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY				
	1651.0	340.52	6.6417	12.364	0.13671				
CORRECTED CONC. TO WET BASIS			5.7071	10.624	0.11747				
EMISSION RATE	HC	NOX	CO						
	0.42834	0.29286	29.944						
EMISSION MASS/MODE	0.042834	0.129286	2.9944						
EMISSION MASS/RATED HP	0.00026772	0.00018304	0.018715						
MODE EMIS./STD. CYCLE %	14.090	12.202	44.560						
CAL. FUEL AIR RATIO = 0.080056		MEAS. FUEL AIR RATIO = 0.082522		DIFF MEAS. & CAL. F/A PERCENT = -2.9883					
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4					
	306.60	318.96	313.62	313.74					
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2			
	1464.8	-144.31	657.40	1543.9	1042.1	1039.2			
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.107					
	149.95	215.20	72.367						
DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.032						
	147.05	2288.5							
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2					
	49.686	50.224	8.7561	45.317					
ORIFICE AIR	TEMP	DELTAP	ORIF	FLOW					
	95.227	2.9779	55.050	2356.0					
CELL TEMP. = 83.225		HEATER TEMP = 93.237		COOLIR TEMP = 37.719					

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OF POOR QUALITY

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NASA-LEWIS	PRELIMINARY DATA	04/22/76	CADDEIT	REC 04/22/76 17:03:37.784	FAC SEX15	PGM C003	RJC 3564
APPROACH LEANOUT RE-RUNS 50 DEG. HUM=30%		MODE = 5.0000		NO. SCANS = 5			
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.000		RATED HP. = 160.00		HC RATIO= 2.1250
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	48.471	29.001	102.50	470.06	1.1265	14.355	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	80.892	5.5980	44.625	39.169	37.522	6.1005	
COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	50.388	3.0155	4.0152	9987.1	32.754	22.998	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP			
	32.754	51.217	16.775	0.38521 64.643			
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	RHP
	0.079823	0.079632	1.1914	2351.2	2353.6	145.70	65.224
WET CORRECTION FACTOR = 0.85441		EXHAUST MOLE. WT. = 27.595		EXHAUST DENSITY = 0.071708		EXHAUST FLOW RATE = 7094.2	
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	1495.9	437.28	5.8222	13.002	0.12773		
CORRECTED CONC. TO WET BASIS			4.9745	11.110	0.10914		
		HC	NOX	CO			
EMISSION RATE		0.38099	0.36916	25.621			
EMISSION MASS/MODE		0.038099	0.036916	2.5621			
EMISSION MASS/RATED HP		0.00023812	0.00023072	0.016013			
MODE FMIS./STD. CYCLE %		12.533	15.382	38.126			
CAL. FUEL AIR RATIO = 0.078171		MEAS. FUEL AIR RATIO = 0.079823		DIFF MEAS. & CAL. F/A PERCENT = -2.0697			
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	310.23	320.77	317.52	316.89			
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	1594.9	-454.00	766.26	1658.0	1053.3	1050.8	
ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.093			
	156.30	273.36	71.603				
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.077				
	140.67	2291.4					
INDUCTION AIR	TAIPT1	TAIRT2	TAIRT1	TAIRT2			
	47.859	48.471	-84.864	45.369			
ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW			
	93.344	1.0839	55.013	1453.6			
CELL TEMP. = 81.420		HEAT TEMP = 93.175		COOLED TEMP = 37.819			

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NASA-LEWIS		PRELIMINARY DATA		04/22/76	CADDEII	REC 04/22/76 17:05:40.633	FAC SEX15	PGM C003	RDG 3565
APPROACH LEANOUT RE-RUNS 50 DEG. HUM=30%				MODE = 5.0000		NO. SCANS = 5			
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.000		RATED HP. = 160.00		HC RATIO = 2.1250	
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL			
	49.311	29.001	102.61	470.52	1.1244	14.352			
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP			
	82.328	5.5857	44.587	37.724	36.796	6.1047			
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT			
	51.300	3.0477	3.9740	10046.	31.647	22.943			
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP				
	31.647	23.610	16.728	0.38414	65.305				
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP		
	0.078202	0.078016	1.1572	2350.1	2352.9	147.10	65.821		
WET CORRECTION FACTOR = 0.85716		EXHAUST MOLE. WT. = 27.825		EXHAUST DENSITY = 0.072047		EXHAUST FLOW RATE = 7057.1			
MEASURED CONC.	PART PER MILLION WET		PER CENT						
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY				
	1373.3	576.58	4.8389	13.589	0.17700				
CORRECTED CONC. TO WET BASIS			4.1477	11.648	0.15171				
		HC	NOX	CO					
EMISSION RATE		0.34793	0.48420	21.250					
EMISSION MASS/MODE		0.034793	0.048420	2.1250					
EMISSION MASS/RATED HP		0.00021746	0.00030263	0.013281					
MODE EMIS./STD. CYCLE %		11.445	20.175	31.622					
CAL. FUEL AIR RATIO = 0.075979		MEAS. FUEL AIR RATIO = 0.078202		DIFF MEAS. & CAL. F/A PERCENT = -2.9430					
CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4					
	313.84	324.07	322.53	320.85					
EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2			
	1195.6	-454.00	865.75	1689.6	1090.5	1078.0			
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.143					
	160.53	67.650	71.415						
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.022						
	140.07	2313.2							
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2					
	48.718	49.311	-24.929	45.345					
PRIFICE AIR	TEMP	DELTAP	ORF	FLOW					
	94.116	2.0157	55.054	1961.7					
CELL TEMP. = 82.803		HEATER TEMP = 93.199		COOLER TEMP = 37.928					

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NASA-LEWIS PRELIMINARY DATA 04/22/76 CADDEII REC 04/22/76 17:08:57.428 FAC SEX15 PGM C003 R0G 3566

APPROACH LEANOUT RE-RUNS 50 DEG. HUM=30% MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.000 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	49.914	29.003	103.07	472.73	1.1255	14.356

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	83.163	5.5947	44.565	37.521	35.142	6.1086

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	51.910	2.9976	3.9421	9953.8	30.837	22.878

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	30.837	43.102	16.666	0.38270	65.078

ENG. COND.	F/A DRY	F/A WET	FOU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.074339	0.074163	1.1095	2350.6	2353.1	146.46	65.547

WET CORRECTION FACTOR = 0.85359 EXHAUST MOLE. WT. = 28.145 EXHAUST DENSITY = 0.072874 EXHAUST FLOW RATE = 6984.7

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	O2 DRY
	1114.1	834.38	3.4090	0.20514
CORRECTED CONC. TO WET BASIS			12.311	0.17511

	HC	NOX	CO
EMISSION RATE	0.27936	0.69352	14.756
EMISSION MASS/MODE	0.027936	0.069352	1.4756
EMISSION MASS/RATED HP	0.00017460	0.00043345	0.0092224
MODE EMISS./STD. CYCLE %	9.1896	28.897	21.958

CAL. FUEL AIR RATIO = 0.073028 MEAS. FUEL AIR RATIO = 0.074339 DIFF MEAS. & CAL. F/A PERCENT = -1.7641

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	320.73	326.84	328.22	325.41

FXT GAS TEMP DEG. F	FXT-1	FXT-2	FXT-3	FXT-4	SEXT-1	SEXT-2
	1483.4	-454.00	972.69	1758.9	1103.2	1100.2

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.276
	163.01	83.555	73.023	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.078
	150.02	2304.0	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	49.275	49.914	-63.346	45.380

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	94.550	1.0557	55.026	1433.3

CELL TEMP. = 83.251 HEATED TEMP = 93.175 COOLER TEMP = 37.737

NASA-LEWIS PRELIMINARY DATA 04/22/76 CADDEII REC 04/22/75 17:12:30.893 FAC SEX15 PGM C003 RDG 3567

APPROACH LEANOUT RE-RUNS 50 DEG. HUM=30% MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BARMETRIC PRESSURE = 29.000 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR TEMP 50.407 PRESS 29.001 CFM 103.81 DRY FLOW 476.30 VAPOR FLOW 1.1320 PRESS TOTAL 14.362

COMP. FUEL TEMP 84.209 PRESS 5.6256 DENSITY 44.538 TURBO FLOW 35.740 FLOW TRON 33.798 FPIP 6.1038

COOLING AIR TEMP 52.511 UDEL-HOOD 3.0092 DEL-HOOD 3.8832 FLOW 9975.3 REL-HUM 30.237 DEW-POINT 22.853

REL-HUM 1 30.237 2 32.997 HUMIDITY 16.636 % H2O VAPOR CORRECTED HP 0.38202 65.278

ENG. COND. F/A DRY 0.070961 F/A WET 0.070792 EQU. RATIO 1.0591 RPM-1 2351.2 RPM-2 2353.7 TORQUE 146.77 BHP 65.706

WET CORRECTION F. FOR = 0.85083 EXHAUST MOLE. WT. = 28.433 EXHAUST DENSITY = 0.073620 EXHAUST FLOW RATE = 6944.2

MEASURED CONC. HC PPM 928.69 NOX PPM 1166.1 CO DRY 2.0932 CO2 DRY 15.186 O2 DRY 0.24230  
CORRECTED CONC. TO WET BASIS CO DRY 1.7810 CO2 DRY 12.921 O2 DRY 0.20616

EMISSION RATE HC 0.23152 NOX 0.96362 CO 8.9787  
EMISSION MASS/MODE HC 0.023152 NOX 0.096362 CO 0.89787  
EMISSION MASS/RATED HP HC 0.00014470 NOX 0.00060226 CO 0.0056117  
MODE FMS./STD. CYCLE % HC 7.6157 NOX 40.151 CO 13.361

CAL. FUEL AIR RATIO = 0.070414 MEAS. FUEL AIR RATIO = 0.070461 DIFF MEAS. & CAL. F/A PERCENT = -0.77017

CYL TEMP DEG.F CYL-1 326.18 CYL-2 328.43 CYL-3 333.72 CYL-4 330.28

EXT GAS TEMP DEG.F EXT-1 1570.6 EXT-2 -454.00 EXT-3 1126.9 EXT-4 1801.8 SEXT-1 1131.6 SEXT-2 1128.1

ENGINE OIL FOILT 164.88 SOILT 135.15 OILP 71.043 MANIFOLD PRESSURE = 18.436

DYMO COND. TORQUE 149.96 RPM 2294.3 CYL. BACK PRESSURE = 29.007

INDUCTION AIR IAIRT1 49.795 IAIRT2 50.407 TAIRT1 -35.161 TAIRT2 45.379

ORIFICE AIR TEMP 95.088 DELTAP 1.0429 DRFP 55.056 FLOW 1424.0

CELL TEMP. = 84.753 HEATER TEMP = 93.134 COOLER TEMP = 37.655

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NASA-LEWIS		PRELIMINARY DATA		04/22/76	CADDEII	REC 04/22/76 17:17:33.093	FAC SEX15	PGM C003	ROG 3568
APPROACH LEANOUT RE-RUNS 50 DEG. HUM=30%				MODE = 5.0000		NO. SCANS = 5			
ENGINE TIMING = 25.000		DEG.		BARDMETRIC PRESSURE = 29.000		RATED HP. = 160.00		HC RATIO = 2.1250	
COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL			
	48.325	29.009	106.01	486.37	1.1575	14.362			
COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP			
	82.741	5.6133	44.576	35.810	33.414	6.0975			
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT			
	50.507	3.0515	3.9568	10053.	32.723	22.878			
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP				
	32.723	43.514	16.659	0.38255	64.080				
ENG. CORR.	F/A DRY	F/A WET	EQU. RATIO	PPM-1	RPM-2	TORQUE	BHP		
	0.068702	0.068539	1.0254	2349.4	2352.4	144.56	64.669		
WET CORRECTION FACTOR = 0.85367		EXHAUST MOLE. WT. = 28.562		EXHAUST DENSITY = 0.073955		EXHAUST FLOW RATE = 7044.0			
MEASURED CONC.	PART PER MILLION WET		PER CENT						
	HC PPM	NOX PPM	CO DRY	CO2 DRY	CO DRY				
	691.87	1444.0	1.0936	15.703	0.45927				
CORRECTED CONC. TO WET BASIS			0.92507	13.405	0.39206				
	HC	NOX	CO						
EMISSION RATE	0.17496	162105	4.7308						
EMISSION MASS/MODE	0.017496	0.12105	0.47308						
EMISSION MASS/RATED HP	0.00010935	0.00075653	0.0029567						
MODE EMIS./STD. CYCLE %	5.7553	50.435	7.0398						
CAL. FUEL AIR RATIO = 0.067923		MEAS. FUEL AIR RATIO = 0.068702		DIFF MEAS. & CAL. F/A PERCENT = -1.1337					
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4					
	324.24	322.88	334.24	330.97					
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SFXT-1	SEXT-2			
	1442.6	-454.00	1236.5	2011.5	1163.6	1159.8			
ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.725					
	167.57	86.279	70.435						
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.095						
	141.29	2315.7							
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2					
	47.740	48.325	11.870	45.410					
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW					
	92.057	2.0127	55.061	1962.2					
CELL TEMP. = 82.724		HEATER TEMP = 93.099		COOLER TEMP = 37.864					

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NASA-Lewis		PRELIMINARY DATA		04/22/76		CADDEII		REC 04/22/76 17:21:55.977		FAC SEX15		PGM C003		RDG 3569	
APPROACH LEANOUT, RE-RUNS 50 DEG. HUM=30% MODE = 5.0000 NO. SCANS = 5															
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 29.000				RATED HP. = 160.00		HC RATIO= 2.1250			
COMB. AIR		TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL								
		48.443	29.012	109.86	504.48	1.1991	14.372								
COMB. FUEL		TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP								
		83.436	5.6139	44.558	34.924	32.766	6.1299								
COOLING AIR		TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT								
		50.653	3.0363	3.8840	10025.	32.561	22.868								
REL-HUM		1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP									
		32.561	39.474	16.638	0.38207	63.672									
ENG. COND.		F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP							
		0.064951	0.064797	0.96942	2351.9	2353.6	143.48	64.251							
WET CORRECTION FACTOR = 0.85258 EXHAUST MOLE. WT. = 28.774 EXHAUST DENSITY = 0.074502 EXHAUST FLOW RATE = 7227.2															
MEASURED CONC.		PART PER MILLION WET		PER CENT											
		HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY									
		401.54	1599.2	0.24785	15.874	0.97520									
CORRECTED CONC. TO WET BASIS				0.21131	13.534	0.83143									
		HC	NOX	CO											
EMISSION RATE		0.10418	1.3753	1.1087											
EMISSION MASS/MODE		0.010418	0.13753	0.11067											
EMISSION MASS/RATED HP		6.5114E-05	0.00085959	0.00069296											
MODE EMIS./STD. CYCLE %		3.4270	57.306	1.6499											
CAL. FUEL AIR RATIO = 0.064982 MEAS. FUEL AIR RATIO = 0.064951 DIFF MEAS. & CAL. F/A PERCENT = 0.047169															
CYL TEMP DEG.F		CYL-1	CYL-2	CYL-3	CYL-4										
		324.88	317.09	333.99	330.98										
EXT GAS TEMP DEG.F		EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2								
		1466.1	-161.93	1279.4	2106.7	1195.8	1192.7								
ENGINE OIL		EOILT	SOILT	OILP	MANIFOLD PRESSURE = 19.284										
		169.30	290.86	72.531											
DYNO COND.		TORQUE	RPM	CYL. BACK PRESSURE = 29.143											
		141.97	2312.5												
INDUCTION AIR		TAIRT1	TAIRT2	TAIRT1	TAIRT2										
		47.822	48.443	69.652	45.337										
ORIFICE AIR		TEMP	DELTA P	ORFP	FLOW										
		93.126	1.0836	55.038	1453.7										
CELL TEMP. = 82.908 HEATER TEMP = 93.037 COOLER TEMP = 37.801															

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NASA-LEWIS PRELIMINARY DATA 04/22/76 CADDEII REC 04/22/76 17:25:21.526 FAC SEX15 PGM C003 RDG 3570

APPROACH LEANOUT RE-RUNS 50 DEG. HUM=30% MCDE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.000 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	48.754	28.996	131.16	604.75	1.4403	14.428

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	83.998	5.6466	44.544	37.440	34.767	6.1131

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	51.345	2.9704	3.9396	9903.2	32.374	22.978

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	32.374	49.053	16.672	0.38284	65.348

ENG. COND.	F/A DRY	F/A WET	EQV. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.057491	0.057354	0.85807	2353.3	2354.0	147.09	65.906

WET CORRECTION FACTOR = 0.85613 EXHAUST MFLF. WT. = 28.842 EXHAUST DENSITY = 0.074679 EXHAUST FLOW RATE = 8582.8

MEASURED CONC.	PART PER MILLION WET	PER CENT			
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	86.909	905.99	0.073201	14.508	3.2151
CORRECTED CONC. TO WET BASIS			0.052670	12.421	2.7526

	HC	NOX	CO
EMISSION RATE	0.026778	0.02534	0.39050
EMISSION MASS/MODE	0.0026778	0.002533	0.039050
EMISSION MASS/RATED HP	1.6737E-05	0.00057833	0.00024406
MODE EMIS./STD. CYCLE %	0.88087	38.556	0.58110

CAL. FUEL AIR RATIO = 0.058656 MEAS. FUEL AIR RATIO = 0.057491 DIFF MEAS. & CAL. F/A PERCENT = 2.0267

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	309.02	303.65	309.76	324.90

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	777.62	233.18	1418.2	2182.0	1251.9	1246.1

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	168.97	74.385	72.951	22.095

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE
	142.96	2282.8	29.095

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	48.206	48.754	121.79	45.200

CRIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	93.795	2.9953	55.093	2365.6

CELL TEMP. = 82.910 HEATER TEMP = 93.030 COILER TEMP = 38.237

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13	NASA-LEWIS	PRELIMINARY DATA	04/22/76	CADDEII	REC 04/22/76 17:28:42.399	FAC SEX15	PGM C003	RDG 3571
15	APPROACH LEANOUT RE-RUNS 50 DEG. HUM=30% MODE = 5.0000 NO. SCANS = 5							
17	ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.000		RATED HP. = 160.00		HC RATIO= 2.1250
19	COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
21		49.010	29.019	145.54	673.41	1.5933	14.472	
23	COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
25		84.612	5.6046	44.528	39.761	36.520	6.0909	
27	COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT	
29		51.956	3.0247	3.8840	10004.	31.955	22.913	
31	REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
33		31.955	74.107	16.563	0.38033	64.024		
35	ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
37		0.054231	0.054103	0.80942	2350.6	2353.6	144.22	64.549
39	WET CORRECTION FACTOR = 0.85458		EXHAUST MOLE. WT. = 28.865		EXHAUST DENSITY = 0.074738		EXHAUST FLOW RATE = 9520.2	
41	MEASURED CONC.	PART PER MILLION WET.		PER CENT				
43		HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
45		95.209	576.46	0.059287	13.847	4.0864		
47	CORRECTED CONC. TO WET BASIS			0.050665	11.833	3.4922		
49	EMISSION RATE	HC	NOX	CO				
51		0.032540	0.065307	0.35018				
53	EMISSION MASS/MODE	0.0032540	0.065307	0.035018				
55	EMISSION MASS/RATED HP	2.0338E-05	0.00040817	0.00021886				
57	MODE EMIS./STD. CYCLE %	1.0704	27.211	0.52110				
59	CAL. FUEL AIR RATIO = 0.055286		MEAS. FUEL AIR RATIO = 0.054231		DIFF MEAS. & CAL. F/A PERCENT = 3.7885			
61	CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
63		299.53	300.46	306.20	317.24			
65	EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
67		1537.0	485.67	1512.4	1909.6	1299.3	1292.8	
69	ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 23.895			
71		167.61	143.81	73.159				
73	DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.159				
75		155.01	2338.4					
77	INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIPT2			
79		48.517	49.010	143.27	45.002			
81	CRIFICE AIR	TEMP	DELTAP	ORFP	FLOW			
83		93.873	1.0364	55.309	1421.2			
85	CELL TEMP. = 84.393		HEATER TEMP = 92.975		COOLER TEMP = 38.028			

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NASA-LEWIS	PRELIMINARY DATA	04/22/76	CADDEII	REC 04/22/76 18:29:06.740	FAC SEX15	PGM C003	RDG 3576
LEANOUT RE-RUNS 1 & 2 50 DEG HUM = 60 % 1 1/2 T CLOS MODE = 1.000				NO. SCANS = 5			
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.000		RATED HP. = 160.00		HC RATIO= 2.1250
COMP. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	51.883	29.003	11.185	50.736	0.25141	14.245	
COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	83.848	5.8290	44.548	3.9542	3.1173	6.1788	
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	59.536	-0.049263	0.87151	0.00000	58.962	38.005	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	58.962	41.524	34.687	0.79653	0.72099		
ENG. COND.	F/A DRY	F/A WET	EOU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.061442	0.061139	0.91705	583.74	581.22	6.4923	0.72159
WET CORRECTION FACTOR = 0.85120		EXHAUST MOLE. WT. = 28.835		EXHAUST DENSITY = 0.074664		EXHAUST FLOW RATE = 724.64	
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	12279.	37.074	0.88710	13.367	4.0917		
CORRECTED CONC. TO WET BASIS			0.75510	11.378	3.4829		
EMISSION RATE	HC	NOX	CO				
	0.31944	0.0031969	0.39725				
EMISSION MASS/MODE	0.0053240	5.3282E-05	0.0066203				
EMISSION MASS/RATED HP	3.3275E-05	3.3301E-07	4.1380E-05				
MODE EMISS./STD. CYCLE %	1.7513	0.022201	0.098523				
CAL. FUEL AIR RATIO = 0.063501		MEAS. FUEL AIR RATIO = 0.061442		DIFF MEAS.& CAL. F/A PERCENT = 3.3513			
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	229.45	270.07	257.47	278.55			
FXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	1268.1	-269.80	-454.00	1082.2	622.56	621.09	
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 11.618			
	152.37	321.80	46.221				
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.256				
	9.1449	576.30					
INDUCTION AIR	IAIRT1	IAIPT2	TAIRT1	TAIRT2			
	49.978	51.883	-33.130	44.973			
ORIFICE AIR	TEMP	DELTA P	DPFP	FLOW			
	88.884	1.9998	55.133	1963.6			
CELL TEMP. = 81.754		HEATER TEMP = 88.760		COOLER TEMP = 33.360			

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NASA-LEWIS PRELIMINARY DATA 04/22/76 CADDEII REC 04/22/76 18:33:12.317 FAC SEX15 PGM C003 RDG 3577

LEANOUT RE-RUNS I & T 50 DEG HUM = 60 % 1 1/2 T CLOS MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.000 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	51.108	29.004	17.553	79.703	0.38911	14.246

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	84.226	5.7906	44.538	7.0110	5.6466	6.1716

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT
	63.447	-0.030997	0.86376	0.00000	59.787	37.630

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	59.787	39.796	34.174	1.2506

ENG. COI.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.070845	0.070501	1.0574	1195.7	1196.3	5.5005	1.2523

WET CORRECTION FACTOR = 0.82839 EXHAUST MOLE WT. = 28.443 EXHAUST DENSITY = 0.073646 EXHAUST FLOW RATE = 1164.2

MEASURED CONC.	PART PER MILLION WET	NOX PPM	CO DRY	PER CENT	CO2 DRY	O2 DRY
	1760.2	67.751	3.4430	14.661	0.21292	
CORRECTED CONC. TO WET BASIS			2.8521	12.145	0.17638	

EMISSION RATE	HC	NOY	CO
	0.073566	0.0093862	2.4107
EMISSION MASS/MODE	0.013487	0.0017208	0.44195
EMISSION MASS/RATED HP	8.4294E-05	1.0755E-05	0.0027622
MODE EMIS./STD. CYCLE %	4.4366	0.71700	6.5767

CAL. FUEL AIR RATIO = 0.073298 MEAS. FUEL AIR RATIO = 0.070845 DIFF MEAS. & CAL. F/A PERCENT = 3.4628

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	307.99	327.96	317.01	333.26

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1183.3	-454.00	-402.45	1185.8	691.25	690.27

ENGINE OIL	COILT	SOILT	OILP	MANIFOLD PRESSURE = 7.7571
	153.99	278.70	56.474	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.032
	6.5382	1189.4	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	49.550	51.108	-77.415	44.539

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	89.373	0.051505	55.121	202.44

CELL TEMP. = 82.873 HEATER TEMP = 83.636 COOLER TEMP = 33.305

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NASA-LEWIS PRELIMINARY DATA 04/22/76 CADDEII REC 04/22/76 18:33:33.985 FAC SEX15 PGM C003 RDG 3578

LEANOUT RE-RUNS 1 & T 50 DEG HUM = 60 7 1 1/2 T CLOS MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.000 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	51.345	29.002	17.434	79.131	0.38625	14.243

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	84.367	5.7897	44.534	6.9814	5.6886	6.1737

COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	60.366	-0.033488	0.91192	0.00000	59.242	37.620

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	59.242	38.186	34.168	0.78462	1.4102

ENG. CON.	F/A DRY	F/A WET	FUEL RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.071888	0.071538	1.0729	1197.4	1198.3	6.1923	1.4118

WET CORRECTION FACTOR = 0.83087 EXHAUST MOLE. W. = 28.353 EXHAUST DENSITY = 0.073413 EXHAUST FLOW RATE = 1160.6

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	O2 DRY
	HC PPM	NOX PPM			
	1674.2	65.040	3.5606	14.717	0.12311
CORRECTED CONC. TO WET BASIS			2.9584	12.228	0.10229

	HC	NOX	CO
EMISSION RATE	0.069757	0.0089831	0.4928
EMISSION MASS/MODE	0.0034879	0.00044916	0.12464
EMISSION MASS/RATED HP	2.1799E-05	2.8072E-06	0.00077900
MODE EMIS./STD. CYCLE	1.1473	0.18715	1.8548

CAL. FUEL AIR RATIO = 0.073678 MEAS. FUEL AIR RATIO = 0.071888 DIFF MEAS. & CAL. F/A PERCENT = 2.4906

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	301.80	320.98	310.06	327.13

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1555.4	-454.00	-454.00	580.13	676.29	674.74

ENGINE OIL	FILT	SOILT	OTLP	MANIFOLD PRESSURE
	154.06	-5.0762	55.425	7.7815

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE
	1.9145	1190.0	29.011

INDUCTION AIR	IAIPT1	IAIRT2	TAIRT1	TAIRT2
	49.777	51.345	50.027	44.617

CRIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	89.443	2.9807	55.115	2369.3

CFL TEMP. = 82.986 HEATER TEMP = 88.622 COOLER TEMP = 33.260

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NASA-LEWIS		PRELIMINARY DATA		04/22/76	CADDEII	REC 04/22/76 18:37:28.217	FAC SEX15	PGM C003	RDG 3579
LEANOUT RE-PUNS : & T 50 DEG HUM = 60 % 1 1/2 T CLOS MODE = 7.0000 NO. SCANS = 5									
ENGINE TIMING = 25.000		DES.		BAROMETRIC PRESSURE = 29.000		RATED HP. = 160.00		HC RATIO = 2.1250	
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL			
	52.420	29.001	11.040	50.179	0.24258	14.245			
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP			
	84.955	5.8365	44.519	3.9515	3.0363	6.1902			
COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT			
	60.772	-0.030167	0.81422	0.00000	56.404	7.380			
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP				
	56.404	47.841	33.340	0.77708	0.51127				
ENG. COND.	F/A DRY	F/A WET	F/OJ. RATIO	RPM-1	RPM-2	TORQUE	BHP		
	0.060509	0.050218	0.90312	591.48	588.90	4.5421	0.51153		
WET CORRECTION FACTOR = 0.85031		EXHAUST MOLE. WT. = 28.840		EXHAUST DENSITY = 0.074674		EXHAUST FLOW RATE = 715.88			
MEASURED CONC.	PART PER MILLION WET		PER CENT						
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY				
	12135.	33.813	0.77861	13.167	4.1252				
CORRECTED CONC. TO WET BASIS			0.65206	11.196	3.5077				
EMISSION RATE	HC	NOX	CO						
	0.31188	0.0028805	0.34409						
EMISSION MASS/MODE	0.0051979	4.8009F-05	0.0057348						
EMISSION MASS/RATED HP	3.2487E-05	3.0006F-07	3.5843F-05						
MODE EMIS./STD. CYCLE %	1.7098	0.020004	0.085340						
CAL. FUEL AIR RATIO = 0.053105		MEAS. FUEL AIR RATIO = 0.060505		DIFF MEAS. & CAL. F/A PERCENT = 4.2890					
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4					
	267.45	294.08	282.38	301.04					
EXT GAS TEMP DEG.F	FXT-1	FXT-2	FXT-3	FXT-4	SEXT-1	SEXT-2			
	1363.6	-454.00	-454.00	1155.6	644.15	642.51			
ENGINE OIL	FILT	SOILT	OIL	MANIFOLD PRESSURE = 11.687					
	157.44	361.95	45.757						
DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.351						
	4.2988	576.30							
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2					
	50.507	52.420	76.583	44.023					
ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW					
	87.931	1.0023	55.135	1402.9					
CELL TEMP. =	83.286	HEATER TEMP = 88.497		COOLER TEMP = 33.132					

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NASA-LEWIS PRELIMINARY DATA 04/22/76 CADDPII REC 04/22/76 18:44:23.538 FAC SEX15 PGM C003 RDG 3581

LEANOUT RE-RUNS I & T 50 DEG HUM = 60 % 3/4 T CLOSED MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DES. BAROMETRIC PRESSURE = 29.000 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR TEMP 50.315 PRESS 29.001 CFM 16.946 DRY FLOW 77.084 VAPOR FLOW 0.37011 PRESS TOTAL 14.243

COMP. FUEL TEMP 84.077 PRESS 5.7723 DENSITY 44.542 TURBO FLOW 7.5942 FLOW TRON 6.2286 FPIP 6.1704

COOLING AIR TEMP 59.960 UDEL-HOOD -0.032934 DEL-HOOD 0.82418 FLOW 0.00000 REL-HUM 60.551 DEW-POINT 37.205

PFL-HUM 1 2 HUMIDITY % H2O VAPOR CORRECTED HP  
60.551 44.386 33.509 0.77178 0.74745

ENG. CO. D. F/A DRY 0.080803 F/A WET 0.080417 EQUI. RATIO 1.2060 RPM-1 1198.3 RPM-2 1199.6 TORQUE 3.2837 BHP 0.74918

WET CORRECTION FACTOR = 0.83647 EXHAUST MOLE WT. = 27.616 EXHAUST DENSITY = 0.071506 EXHAUST FLOW RATE = 1170.3

MEASURED CONC. HC PPM 3419.3 NOX PPM 44.986 CO DRY 7.4162 CO2 DRY 12.249 O2 DRY 0.16198  
CORRECTED CONC. TO WET BASIS 6.2034 10.246 0.13549

EMISSION RATE HC 0.14366 NOX 0.0062650 CO 5.2706  
EMISSION MASS/MODE 0.026337 0.0011486 0.96628  
EMISSION MASS/RATED HP 0.00016461 7.1787E-06 0.0060393  
MODE EMISS./STD. CYCLE % 8.6636 0.47858 14.379

CAL. FUEL AIR RATIO = 0.082202 MEAS. FUEL AIR RATIO = 0.080803 DIFF MEAS. & CAL. F/A PERCENT = 1.7315

CYL TEMP DEG.F CYL-1 296.58 CYL-2 311.18 CYL-3 297.47 CYL-4 310.89

EXT GAS TEMP DEG.F EXT-1 1346.2 EXT-2 -454.00 EXT-3 -454.00 EXT-4 1228.8 SEXT-1 648.49 SEXT-2 647.24

ENGINE OIL EOILT 156.99 SOILT 344.06 OILP 53.977 MANIFOLD PRESSURE = 7.5690

DYNO COND. TORQUE 7.2871 RPM 1197.5 CYL. PACK PRESSURE = 28.866

INDUCTION AIR TAIRT1 48.754 TAIRT2 50.315 TAIRT1 115.37 TAIRT2 43.602

ORIFICE AIR TEMP 89.015 DELTAP 2.0072 ORIF. FLOW 1966.8

CELL TEMP. = 82.213 HEATER TEMP = 88.359 COOLER TEMP = 32.886

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NASA-LEWIS PRELIMINARY DATA 04/22/76 CADDEII REC 04/22/76 18:44:45.333 FAC SEX15 PGM C003 RDG 3582

LEANOUT RF-RUNS I & T 50 DEG HUM = 60 % 3/4 T CLOSED MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.000 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	49.932	29.003	17.081	77.690	0.37245	14.245

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	83.620	5.7687	44.554	7.6851	6.3156	6.1683

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	59.346	-0.042067	0.87234	0.00000	61.335	37.170

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	61.335	-0.81008	33.559	0.77062	0.93937

ENG. COND.	F/A DRY	F/A WET	EQU. PATIO	RPM-1	RPM-2	TORQUE	BHP
	0.081293	0.080905	1.2133	1199.1	1198.9	4.1254	0.94188

WET CORRECTION FACTOR = 0.83858 EXHAUST MOL. WT. = 27.578 EXHAUST DENSITY = 0.071405 EXHAUST FLOW RATE = 1181.7

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	3383.3	44.280	7.4487	12.227	0.16756
CORRECTED CONC. TO WET BASIS			6.2463	10.253	0.14051

	HC	NOX	CO
EMISSION RATE	0.14353	0.0062267	5.3587
EMISSION MASS/MODE	0.0071764	0.00031133	0.26793
EMISSION MASS/RATED HP	4.4853E-05	1.7458E-06	0.0016746
MODE EMIS./STD. CYCLE %	2.3607	0.12972	3.9871

CAL. FUEL AIR RATIO = 0.082235 MEAS. FUEL AIR RATIO = 0.081293 DIFF MEAS. & CAL. F/A PERCENT = 1.1593

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	289.90	304.38	291.05	305.83

FXT GAS TEMP DEG. F	FXT-1	FXT-2	FXT-3	FXT-4	SEXT-1	SFXT-2
	1437.3	-454.00	-454.00	510.91	635.58	634.03

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	156.91	-139.10	53.377	7.6089

DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	2.7651	1193.1	28.931

INDUCTION AIR	IAIPT1	IAIPT2	TAIPT1	TAIPT2
	48.370	49.932	158.29	43.716

ORIFICE AIR	TEMP	DELTA P	ORF3	FLOW
	83.482	2.0014	55.183	1965.0

CELL TEMP. = 81.085 FATER TEMP = 89.359 COOLER TEMP = 32.913

ORIGINAL PAGE IS  
OF POOR QUALITY.

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NASA-LEWIS PRELIMINARY DATA 04/22/76 CADDEII REC 04/22/76 18:48:29.246 FAC SEX15 PGM C003 RDG 3583

LEANOUT PE-RUNS T & T 50 DEG HUM = 60 % 3/4 T CLOSED MODE = 7.000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.000 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	50.945	28.995	10.064	45.706	0.21945	14.243

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	83.559	5.8029	44.555	3.9548	3.8944	6.1875

COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	58.849	-0.030443	0.83313	0.00000	59.154	37.205

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	59.154	29.689	33.511	0.77183	0.44358

ENG. COND.	F/A DRY	F/A WET	FUEL RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.085205	0.084798	1.2717	580.48	588.84	3.9671	0.44450

WET CORRECTION F/A DRY = 0.85791 EXHAUST MOLE. WT. = 27.274 EXHAUST DENSITY = 0.070619 EXHAUST FLOW RATE = 705.48

MEASURED CONC.	PART PER MILLION WET			PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	20284.	10.777	7.5520	10.120	2.3337
CORRECTED CONC. TO WET BASIS			6.4789	8.6818	2.0021

	HC	NOX	CO
EMISSION RATE	0.51372	0.00090475	3.3184
EMISSION MASS/MODE	0.0085621	1.5079E-05	0.055306
EMISSION MASS/RATED HP	5.3513E-05	9.4245E-08	0.00034566
MODE FMS./STD. CYCLE %	2.8165	0.0062830	0.82300

CAL. FUEL AIR RATIO = 0.085673 MEAS. FUEL AIR RATIO = 0.085205 DIFF MEAS. & CAL. F/A PERCENT = 0.54900

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	268.03	278.68	259.08	279.52

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1291.7	-454.00	-454.00	1047.7	630.36	628.64

ENGINE OIL	OILT	SOILT	OILP	MANIFOLD PRESSURE = 10.992
	159.45	272.15	45.525	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.256
	9.0045	596.34	

INDUCTION AIR	TAIPT1	TAIRT2	TAIRT1	TAIPT2
	48.955	50.945	135.15	44.385

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	88.106	1.0411	55.147	1431.8

CIL TEMP. = 81.245 HEATED TEMP = 88.200 COOLER TEMP = 32.795

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NASA-LEWIS		PRELIMINARY DATA		04/22/76	CADDEII	REC 04/22/76 18:48:49.722	FAC SEX15	PGM C003	RDG 3584
LEANOUT RE-RUNS 1 & T 50 DEG HUM = 60 % 3/4 T CLOSED MODE = 1.0000									
NO. SCANS = 5									
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.000		RATED HP. = 160.00		HC RATIO = 2.1250	
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL			
	51.145	28.999	10.007	45.433	0.21824	14.242			
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP			
	83.866	5.8041	44.547	3.9507	3.8734	5.1731			
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT			
	58.913	-0.041790	0.87677	0.00000	58.739	37.215			
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP				
	58.739	33.709	33.625	0.77214	0.41831				
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP		
	0.085254	0.084847	1.2725	584.34	582.66	3.7670	0.41912		
WET CORRECTION FACTOR = 0.86429		EXHAUST MOL. WT. = 27.270		EXHAUST DENSITY = 0.070609		EXHAUST FLOW RATE = 701.40			
MEASURED CONC.	PART PER MILLION WET			PER CENT					
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY				
	20933.	10.181	7.2964	10.094	2.6303				
CORRECTED CONC. TO WET BASIS				6.3062	8.7238	2.2733			
EMISSION RATE	HC	NOX	CO						
	0.52710	0.00084977	3.2112						
EMISSION MASS/MODE	0.0087849		1.4163E-05		0.053520				
EMISSION MASS/RATED HP	5.4906E-05		8.3517E-08		0.00033450				
MODE EMIS./STD. CYCLE %	2.8898		0.0059012		0.79643				
CAL. FUEL AIR RATIO = 0.084498		MEAS. FUEL AIR RATIO = 0.085254		DIFF MEAS. & CAL. F/A PERCENT = -0.88658					
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4					
	259.38	269.92	250.04	268.99					
EXT GAS TEMP DEG.F	FXT-1	EXT-2	FXT-3	FXT-4	SFXT-1	SEXT-2			
	779.93	-454.00	-454.00	361.63	621.22	618.98			
ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 11.001					
	158.94	-11.328	45.525						
DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 28.773						
	4.1044	573.54							
INDUCTION AIR	IAIRT1	IAIPT2	TAIRT1	TAIRT2					
	49.110	51.145	111.68	44.530					
ORIFICE AIR	TEMP	DELTAP	ORFD	FLOW					
	88.124	2.9693	55.127	2367.8					
CELL TEMP. =	81.298	HEATER TEMP = 88.269		COOLER TEMP = 32.849					

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NASA-LEWIS		PRELIMINARY DATA		04/22/76	CADDEII	REC 04/22/76 18:54:41.680		FAC SEX15	PGM C003	RDG 3585	
LEANOUT RE-PUNS I & T 50 DEG HUM = 60 % NEUTRAL				MODE = 1.0000		NO. SCANS = 5					
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.000			RATED HP. = 160.00		HC RATIO = 2.1250			
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL					
	51.537	28.997	11.502	52.313	0.25061	14.242					
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP					
	84.718	5.7768	44.525	3.9522	4.7795	6.1707					
COOLING AIR	TEMP	DEW-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT					
	59.274	-0.023524	0.92633	0.00000	57.735	37.145					
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP						
	57.735	47.243	33.533	0.77004	0.59111						
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP				
	0.091362	0.090927	1.3536	604.62	604.68	5.1422	0.59198				
WET CORRECTION F/A DRY = 0.87459		EXHAUST MOLE. WT. = 26.818			EXHAUST DENSITY = 0.069439		EXHAUST FLOW RATE = 825.81				
MEASURED CONC.	PART PER MILLION WET			PER CENT		760					
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY						
	26904.	6.2546	8.5712	8.6631	3.0528						
CORRECTED CONC. TO WET BASIS				7.4963	7.5767						2.6599
	HC	NOX	CO								
EMISSION RATE	0.79763	0.00061465	4.4943								
EMISSION MASS/MODE	0.013294	1.0244E-05	0.074904								
EMISSION MASS/RATED HP	8.3086E-05	5.4026E-08	0.00046815								
MODE FMS./STD. CYCLE %	4.3729	0.0042684	1.1146								
CAL. FUEL AIR RATIO = 0.089957		MEAS. FUEL AIR RATIO = 0.091362		DIFF MEAS. & CAL. F/A PERCENT = -1.5386							
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4							
	258.10	256.88	243.68	260.12							
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2					
	843.97	-454.00	-454.00	1015.3	584.51	583.38					
ENGINE OIL	OILT	OILT	OILD	MANIFOLD PRESSURE = 11.294							
	157.95	373.18	46.125								
DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 28.883								
	6.5670	607.68									
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2							
	49.604	51.537	147.67	43.604							
ORIFICE AIR	TEMP	DELTAP	ORFD	FLOW							
	88.937	2.9728	55.092	2367.4							
CELL TEMP. = 82.249		HEATER TEMP = 89.172		COOLER TEMP = 32.630							

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NASA-LFWIS	PRELIMINARY DATA	04/22/76	CADDEII	REC 04/22/76 18:55:03.167	FAC SEX15	PGM C003	RDG 3586
LEANOUT RE-RUNS I & T 50 DEG HUM = 60 % NEUTRAL				MODE = 7.0000	NO. SCANS = 5		
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.000		RATED HP. = 160.00		HC RATIO = 2.1250
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS. TOTAL	
	51.628	28.999	11.424	51.958	0.24946	14.241	
COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	84.867	5.7744	44.521	3.9518	4.7645	6.1713	
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT	
	59.410	-0.022694	0.95490	0.00000	57.666	37.200	
RFL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	57.666	49.205	33.508	0.77176	0.43583		
ENG. COND.	F/A DRY	F/A WET	F/OIL RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.091698	0.091260	1.3586	601.80	601.08	3.8087	0.43642
WET CORRECTION FACTOR = 0.87393		EXHAUST MOLE. WT. = 26.794		EXHAUST DENSITY = 0.059377		EXHAUST FLOW RATE = 821.20	
MEASURED CONC.	PART PER MILLION WET			PER CENT			
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	28451.	6.3176	8.4597	8.6850	3.0681		
CORRECTED CONC. TO WET BASIS			7.4019	7.5901	2.6813		
		HC	NOX	CO			
EMISSION RATE		0.83879	0.00061737	4.4129			
EMISSION MASS/MODE		0.013980	1.0290E-05	0.073549			
EMISSION MASS/RATED HP		8.7373E-05	5.4310E-08	0.00045960			
MODE EMIS./STD. CYCLE %		4.5986	0.0042873	1.0945			
CAL. FUEL AIR RATIO = 0.090492		MEAS. FUEL AIR RATIO = 0.091698		DIFF MEAS. & CAL. F/A PERCENT = -1.3146			
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	250.23	260.54	234.68	251.10			
EXT GAS TEMP DEG.F	FXT-1	FXT-2	FXT-3	FXT-4	SFXT-1	SFXT-2	
	598.59	-100.99	-454.00	415.13	574.75	573.15	
ENGINE OIL	FIILT	SOILT	OILP	MANIFOLD PRESSURE = 11.349			
	157.39	17.121	46.317				
DYNO COND.	TORQUE	RPM	CYL. PACK PRESSURE = 28.989				
	7.9568	607.62					
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2			
	49.713	51.628	196.66	43.588			
ORIFICE AIR	TEMP	DELTAP	ORIF	FLOW			
	89.024	2.9861	55.174	2372.3			
CELL TEMP. = 82.227		HEATER TEMP = 88.158		COOLER TEMP = 32.640			

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NASA-LEWIS PRELIMINARY DATA 04/22/76 CADDELL PEC 04/22/76 18:59:36.818 FAC SEX15 PGM C003 RDG 3587

LEANOUT RE-RJNS I & T 50 DEG HUM = 60 % NEUTRAL MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.000 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	50.671	28.997	17.927	81.604	0.39342	14.244

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIF
	85.025	5.7480	44.517	8.7185	7.2967	6.1665

COOLING AIR	TEMP	FUEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	61.304	-0.027122	0.85103	0.00000	60.004	37.310

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	60.004	50.189	33.748	0.77497	0.50563

ENG. COND.	F/A DRY	F/A WET	FOLL. RATIO	RPM-1	PPM-2	TORQUE	BHP
	0.089415	0.088987	1.3345	1204.7	1204.5	2.2086	0.50661

WET CORRECTION FA TR = 0.84351 EXHAUST MILE. RT. = 26.959 EXHAUST DENSITY = 0.059805 EXHAUST FLOW RATE = 1279.2

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	NOX PPM	CO DRY
7253.7	24.267	10.341
CORRECTED CONC. TO WET BASIS		8.7229
		8.4858
		0.27953
		0.23578

EMISSION RATE	HC	NOX	CO
EMISSION MASS/MODE	0.33312	0.0036941	8.1010
EMISSION MASS/RATED HP	0.061071	0.00067725	1.4852
MODE EMIS./STD. CYCLE %	0.00038169	4.2328E-06	0.0092824
	20.089	0.28219	22.101

CAL. FUEL AIR RATIO = 0.091211 MEAS. FUEL AIR RATIO = 0.089416 DIFF MEAS. & CAL. F/A PERCENT = 2.0069

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	331.80	348.01	332.55	353.40

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1197.2	-454.00	-454.00	1091.1	713.26	712.70

ENGINE OIL	OILT	SOILT	OIL	MANIFOLD PRESSURE
	163.64	269.30	52.505	7.9338

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	4.4932	1202.7	29.059

INDUCTION AIR	TAIPT1	TAIPT2	TAIRT1	TAIPT2
	49.674	53.671	142.00	43.252

ORIFICE AIR	TEMP	DELTAP	ORIF	FLOW
	89.574	1.0420	55.116	1430.5

CELL TEMP. = 83.515 HEATED TEMP = 88.075 COOLER TEMP = 33.269

NASA-LEWIS		PRELIMINARY DATA		04/22/76	CADDEII	REC 04/22/76 18:59:58.589	FAC SEX15	PGM C003	RDG 3588
LEANOUT RE-RUNS I & T 50 DEG HUM = 60 % NEUTRAL									
MODE = 6.0000									
NO. SCANS = 5									
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.000		RATED HP. = 160.00		HC RATIO = 2.1250	
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL			
	50.899	29.004	18.041	82.079	0.39693	14.243			
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP			
	85.323	5.7447	44.509	8.9971	7.4947	6.1683			
COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT			
	61.322	-0.037639	0.84439	0.00000	59.676	37.385			
RFL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP					
	59.676	43.356	33.851	0.77734		1.2612			
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP		
	0.091311	0.090871	1.3529	1202.7	1204.0	5.5172	1.2634		
WET CORRECTION FACTOR = 0.85003									
EXHAUST MOLE. WT. = 26.822									
EXHAUST DENSITY = 0.069449									
EXHAUST FLOW RATE = 1295.5									
MEASURED CONC.	PART PER MILLION WET		PER CENT						
	HC PPM	NOX PPM	CO DRY	CO2 DRY					
	7800.8	23.720	10.298	10.086	0.26343				
CORRECTED CONC. TO WET BASIS			8.7540	8.5737	0.22392				
EMISSION RATE	HC	NOX	CO						
	0.36280	0.0036568	8.2334						
EMISSION MASS/MODE	0.018140	0.00018284	0.41167						
EMISSION MASS/RATED HP	0.00011338	1.1428E-06	0.0025729						
MODE EMIS./STD. CYCLE %	5.9671	0.076184	6.1260						
CAL. FUEL AIR RATIO = 0.091408									
MEAS. FUEL AIR RATIO = 0.091311									
DIFF MEAS. & CAL. F/A PERCENT = 0.10588									
CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4					
	319.65	335.94	321.37	342.13					
EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2			
	898.85	-454.00	-454.00	459.99	697.51	696.39			
ENGINE OIL	FOILT	SOILT	OIL	MANIFOLD PRESSURE = 7.9469					
	163.25	22.494	52.641						
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.004						
	13.170	1201.1							
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2					
	49.257	50.899	199.12	43.473					
ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW					
	89.696	2.0423	55.140	1981.7					
CELL TEMP. = 83.524									
HEATER TEMP = 89.103									
COOLER TEMP = 33.342									

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NASA-LEWIS	PRELIMINARY DATA	04/22/76	CADDEII	REC 04/22/76 19:08:28.761	FAC SEX15	PGM C003	RDG 3589
LEANOUT RE-RUNS I & T 50 DEG HUM = 60 % 3/4 T OPEN MODE = 1.0000 NO. SCANS = 5							
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.000		RATED HP. = 160.00		HC RATIO = 2.1250
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	50.379	29.003	13.651	61.944	0.30065	14.244	
COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	83.576	5.7315	44.555	3.9531	6.1866	6.1605	
COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	58.868	-0.037362	0.87289	0.00000	61.066	37.480	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	61.066	63.368	33.975	0.78019	0.25771		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.099874	0.099391	1.4907	593.40	598.62	2.3752	0.26837
WET CORRECTION FAC. TR = 0.88622		EXHAUST MOLE. WT. = 26.234		EXHAUST DENSITY = 0.067926		EXHAUST FLOW RATE = 1007.4	
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	39201.	4.0484	9.9946	6.8368	3.9343		
CORRECTED CONC. TO WET BASIS			8.8574	6.0589	3.4867		
EMISSION RATE	HC	NOX	CO				
	1.4178	0.00048534	6.4783				
EMISSION MASS/MODE	0.023630	8.0891E-06	0.10797				
EMISSION MASS/RATED HP	0.00014769	5.0557E-08	0.00057483				
MODE FMIS./STD. CYCLE %	7.7731	0.0033705	1.6067				
CAL. FUEL AIR RATIO = 0.098679		MEAS. FUEL AIR RATIO = 0.099874		DIFF MEAS. & CAL. F/A PERCENT = -1.1960			
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	261.98	281.01	262.15	280.39			
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	907.26	-454.00	-454.00	1093.1	604.55	603.99	
ENGINE OIL	EOILT	SOILT	DOILT	MANIFOLD PRESSURE = 12.573			
	159.23	403.27	45.785				
PYNG COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.211				
	1.3321	591.60					
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2			
	48.489	50.379	75.734	44.808			
ORIFICE AIR	TEMP	DEL.TAP	ORIF.	FLOW			
	87.582	2.9676	55.114	2368.3			
CELL TEMP. = 81.104		HEATED TEMP = 87.985		COOLER TEMP = 34.371			

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NASA-LEW'S		PRELIMINARY DATA		04/22/76	CADDEII	REC 04/22/76 19:11:45.754		FAC SFX15	PGM C003	RDG 3591
LEAFOUT PE-RUNS 1 & T 50 DEG HUM = 60 % 3/4 T JPFV MODE = 2.0000 NO. SCANS = 5										
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.000			NATED HP. = 160.00		HC RATIO = 2.1250	
COMB. AIR	TFMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL				
	49.987	29.007	19.645	89.148	0.43103	14.248				
COMB. FUEL	TFMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP				
	83.638	5.7204	44.553	10.221	8.7189	6.1635				
COOLING AIR	TEMP	UNFL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT				
	60.024	-0.026845	0.82833	0.00000	61.744	37.390				
REL-HUM	1	2	HUMIDITY	% H2O VAPOR		CORRECTED HP				
	61.744	54.279	33.845	0.77720		1.3876				
ENG. COND.	F/A DRY	F/A WFT	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP			
	0.097803	0.097332	1.4797	1199.2	1198.9	6.0923	1.3910			
WET CORRECTION FACTOR = 0.85568			EXHAUST MOLE. WT. = 26.371			EXHAUST DENSITY = 0.068282			EXHAUST FLOW RATE = 1439.6	
MEASURED CONC.	PART PER MILLION WFT		PER CENT							
	HC PPM	NOX PPM	CO DRY	CO2 DRY						
	12198.	12.763	11.797	9.0079	0.35628					
CORRECTED CONC. TO WET BASIS			10.095	7.7079	0.30486					
EMISSION RATE	HC	NOX	CO							
	0.63042	0.0021865	10.550							
EMISSION MASS/MODE	0.11558	0.00340085	1.9342							
EMISSION MASS/RATED HP	0.00072235	2.5053E-06	0.012089							
MODE EMIS./STD. CYCLE %	39.019	0.16702	28.783							
CAL. FUEL AIR RATIO = 0.097752			MEAS. FUEL AIR RATIO = 0.097803			DIFF MEAS. & CAL. F/A PERCENT = -0.051437				
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4						
	328.55	349.33	328.33	346.58						
EXT GAS TEMP DEG.F	FXT-1	FXT-2	FXT-3	FXT-4	SXT-1	SXT-2				
	1133.2	-454.00	-384.50	1161.8	715.74	715.99				
ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 8.4551						
	161.98	287.17	55.637							
DYMO COND.	TORQUE	PDM	CYL. BACK PRESSURE = 28.957							
	5.5590	1195.0								
INDUCTION AIR	TAIPT1	TAIRT2	TAIRT1	TAIRT2						
	48.535	49.987	147.97	44.949						
ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW						
	89.019	2.0344	55.233	1981.1						
CELL TEMP. = 82.143			HEATER TEMP = 87.964			COOLER TEMP = 34.681				

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NASA-LEWIS	PRELIMINARY DATA	04/22/76	CADDE11	REC 04/22/76 19:12:06.486	FAC SEX15	PGM C003	RDG 3592
LEANDUT RE-RUNS I & T 50 DEG HUM = 60 % 3/4 T OPEN MODE = 6.0000 NO. SCANS = 5							
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.000		RATED HP. = 160.00		HC RATIO = 2.1250
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	50.197	29.008	19.541	88.676	0.42840	14.249	
COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	83.699	5.7165	44.552	10.489	8.9139	6.1659	
COOLING AIR	TEMP	UDFL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	60.033	-0.049540	0.87565	0.00000	61.216	37.370	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP			
	61.216	35.912	33.817	0.77656 1.3288			
ENG. CO. D.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10052	0.10004	1.5003	1197.4	1198.6	5.8422	1.3319
WET CORRECTION FACTOR = 0.86776		EXHAUST MOLE. WT. = 25.192		EXHAUST DENSITY = 0.067816		EXHAUST FLOW RATE = 1445.4	
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	12387.	12.519	11.579	9.0357	0.41316		
CORRECTED CONC. TO WET BASIS			10.049	7.8408	0.35852		
EMISSION RATE	HC	NOX	CO				
	0.64275	0.0021533	10.543				
EMISSION MASS/MODE	0.032138	0.00010766	0.52716				
EMISSION MASS/RATED HP	0.00020086	6.7290E-07	0.0032947				
MODE EMISS./STD. CYCLE	12.572	0.044860	7.8446				
CAL. FUEL AIR RATIO = 0.097136		MEAS. FUEL AIR RATIO = 0.10052		DIFF MEAS. & CAL. F/A PERCENT = -3.3679			
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	318.25	338.50	318.21	338.40			
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SFXT-1	SEXT-2	
	891.03	-454.00	-454.00	619.18	696.65	696.09	
ENGINE OIL	EOILT	SOILT	NOILT	MANIFOLD PRESSURE = 8.4795			
	162.07	73.489	55.766				
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.136				
	8.3960	1201.8					
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2			
	48.681	50.197	56.054	44.972			
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW			
	88.045	1.0288	55.187	1423.5			
OIL TEMP. = 82.345		HEATER TEMP = 87.978		COOLER TEMP = 34.699			

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NASA-LEWIS PRELIMINARY DATA 04/22/76 CADDEII REC 04/22/76 19:16:28.721 FAC SEX15 PGM C003 RDG 3593

LEANOUT RE-RUNS I & T 50 DEG HUM = 60 % 3/4 T OPEN MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.000 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	51.664	28.997	13.230	60.011	0.29068	14.242

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	84.849	5.7378	44.522	7.5054	6.1206	6.1629

COOLING AIR	TEMP	WFL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT
	60.736	-0.036532	0.85601	0.00000	58.100	37.425

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	58.100	43.378	33.906	0.77861	0.20982

ENG. COND.	F/A DRY	F/A WET	FQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10199	0.10150	1.5223	598.98	602.52	1.8419	0.21006

WET CORRECTION FACTOR = 0.89197 EXHAUST MOLE. WT. = 26.097 EXHAUST DENSITY = 0.067570 EXHAUST FLOW RATE = 983.00

MEASURED CONC.	PART PER MILLION NET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	36924.	4.2994	10.061	7.0733	3.5863
CORRECTED CONC. TO WET BASIS			8.9741	6.3092	3.1988

EMISSION RATE	HC	NOX	CO
	1.3031	0.00050294	6.4045
	0.021718	8.3823E-06	0.10674
	0.00013574	5.2389E-08	0.00066713
MODE EMISS./STD. CYCLE	7.1440	0.0034926	1.5984

CAL. FUEL AIR RATIO = 0.098380 MEAS. FUEL AIR RATIO = 0.10199 DIFF MEAS. & CAL. F/A PERCENT = -3.5407

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	265.50	285.26	261.93	282.93

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1295.7	-454.00	-454.00	1018.1	648.49	647.55

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 12.479
	163.72	276.69	45.361	

DYNO COND.	TORQUE	RPM	CYL. PACK PRESSURE = 28.930
	7.5536	594.96	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	49.841	51.664	182.10	44.959

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	88.666	2.9687	55.197	2366.4

CELL TEMP. = 82.302 HEATED TEMP = 87.916 COOLER TEMP = 34.271

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NASA-LEWIS		PRELIMINARY DATA		04/22/76	CADDEII	REC 04/22/76 19:16:48.278		FAC SEX15	PGM C003	RDG 3594
LEANOUT PE-RUNS I & T 50 DEG HUM = 60 ? 3/4 T OPEN MODE = 7.0000 NO. SCANS = 5										
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.000			RATED HP. = 160.00		HC RATIO = 2.1250	
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL				
	51.846	29.001	13.303	60.339	0.29211	14.247				
COMP. FUEL	TEMP	PRESS	DENSITY	ARB FLOW	FLOW TRON	FPIP				
	85.069	5.7387	44.515	1.5574	6.1536	6.1716				
COOLING AIR	TEMP	DELT-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT				
	60.781	-0.035148	0.84134	0.00000	57.700	37.420				
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP					
	57.700	41.214	33.888	0.77818	0.86433					
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP			
	0.10198	0.10149	1.5221	601.14	602.76	7.5591	0.86521			
WET CORRECTION FACTOR = 0.89095		EXHAUST MOLE. WT. = 26.097			EXHAUST DENSITY = 0.067572		EXHAUST FLOW RATE = 988.36			
MEASURED CONC.	PART PER MILLION WFT			PER CENT		87				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY					
	37402.	4.3364	10.122	7.0972	3.6157					
CORRECTED CONC. TO WET BASIS			9.0182	6.3233	3.2214					
EMISSION RATE		HC	NOX	CO						
		1.3271	0.00051003	6.4710						
EMISSION MASS/MODE		0.022119	8.5004E-06	0.10785						
EMISSION MASS/PATED HP		0.00013824	5.3128E-08	0.00067406						
MODE EMIS./STD. CYCLE %		7.2759	0.0035418	1.6049						
CAL. FUEL AIR RATIO = 0.098550		MEAS. FUEL AIR RATIO = 0.10198			DIFF MEAS. & CAL. F/A PERCENT = -3.3663					
CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4						
	257.03	277.04	252.41	272.80						
EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2				
	781.02	-454.00	-454.00	389.92	637.47	636.44				
ENGINE OIL	EOILT	SOILT	OTLP	MANIFOLD PRESSURE = 12.501						
	163.09	-79.520	45.529							
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 28.846							
	4.1404	593.76								
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2						
	49.987	51.846	73.678	45.146						
ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW						
	88.762	2.0568	55.195	1990.0						
CELL TEMP. = 82.273		HEATER TEMP = 87.937			COOLER TEMP = 34.253					

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NASA-LEWIS PRELIMINARY DATA 04/22/76 CADDETT REC 04/22/76 19:53:56.143 FAC SEX15 PGM C003 RDG 3605

LEANOUT PE-RJNS I & T 50 DEG HUM = 60 % 1 1/2 T OPEN MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.000 RATED HP = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	49.859	28.999	14.242	64.572	0.31445	14.245

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	82.812	5.7225	44.575	8.2854	6.7957	6.1629

COOLING AIR	TEMP	INLET-HUMID	DEL-HUMID	FLOW	REL-HUM	DEW-POINT
	59.473	-0.045942	0.85570	0.00000	62.369	37.525

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	62.369	39.490	34.036	0.78157	0.19205

ENG. CO.D.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10509	0.10457	1.5583	592.02	594.42	1.7085	0.19259

WET CORRECTION FACTOR = 0.89355 EXHAUST MJLF. WT. = 25.902 EXHAUST DENSITY = 0.067067 EXHAUST FLOW RATE = 1070.3

MEASURED CONC.	PART PER MILLION WET			PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	46832.	4.3894	10.073	6.3614	4.1522
CORRECTED CONC. TO WET BASIS			9.0005	5.6843	3.7102

	HC	NOX	CO
EMISSION RATE	1.7995	0.00055906	6.9937
EMISSION MASS/MODE	0.029991	9.3177E-06	0.11656
EMISSION MASS/RATED HP	0.00018745	5.3236E-08	0.00072851
MODE EMIS./STD. CYCLE %	9.8656	0.0038824	1.7345

CAL. FUEL AIR RATIO = 0.10303 MEAS. FUEL AIR RATIO = 0.10508 DIFF MEAS. & CAL. F/A PERCENT = -1.9468

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	261.54	283.61	252.10	283.56

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	649.20	-454.00	499.30	593.27	667.92	667.19

ENGINE OIL	EMILT	SMILT	OILP	MANIFOLD PRESSURE = 13.108
	160.86	5.7917	45.589	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.000
	13.268	596.32	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	49.124	49.859	80.180	44.477

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	87.451	1.9766	55.156	1955.3

CELL TEMP. = 81.421 HEATED TEMP = 87.702 COOLIR TEMP = 34.753

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NASA-LEWIS PRELIMINARY DATA 04/22/76 CADDEII REC 04/22/76 19:59:55.784 FAC SEX15 PGM C003 RDG 3507

LEANOUT RE-RUNS I & T 50 DEG HUM = 60 % 1 1/2 T OPEN MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DFS. BAROMETRIC PRESSURE = 29.000 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	51.719	29.005	15.067	68.396	0.33261	14.248

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	83.963	5.7090	44.545	3.9505	7.1557	6.1677

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	59.437	-0.053137	0.89922	0.00000	58.235	37.535

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	58.235	40.156	34.341	0.78170	0.48860

ENG. COND.	F/A DRY	F/A WET	EQU. PATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10462	0.10412	1.5515	620.15	624.12	4.1421	0.48910

WET CORRECTION FACTOR = 0.90005 EXHAUST WJLF. WT. = 25.931 EXHAUST DENSITY = 0.067141 EXHAUST FLOW RATE = 1130.2

MEASURED CONC.	PART PER MILLION WET			PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	41868.	4.6505	9.5475	6.7363	3.8004
CORRECTED CONC. TO WET BASIS			8.5932	6.0629	3.4205

	HC	NOX	CO
EMISSION RATE	1.6988	0.00062547	7.0511
EMISSION MASS/MODE	0.028313	1.0425E-05	0.11752
EMISSION MASS/RATED HP	0.00017696	5.5153E-08	0.00073449
MODE EMIS./STD. CYCLE %	9.3136	0.0043436	1.7488

CAL. FUEL AIR RATIO = 0.099949 MEAS. FUEL AIR RATIO = 0.10462 DIFF MEAS. & CAL. F/A PERCENT = -4.4664

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	217.94	245.10	221.48	234.01

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1354.3	-354.00	234.33	1022.5	582.99	582.52

ENGINE OIL	OILT	SOILT	OILP	MANIFOLD PRESSURE = 12.785
	150.22	323.03	47.165	

DYNM COND.	TORQUE	RPM	CYL. PACK PRESSURE = 29.025
	4.8317	515.90	

INDUCT ION AIR	TAIPT1	TAIPT2	TAIRT1	TAIRT2
	49.941	51.719	151.00	44.757

CRIFFICE AIR	TEMP	DELTAP	ORFP	FLOW
	88.421	2.0480	55.174	1986.6

CELL TEMP. = 82.169 HEATER TEMP = 87.632 COOLER TEMP = 34.016

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NASA-LEWIS		PRELIMINARY DATA		04/22/76		CADDEII		REC 04/22/76 20:00:17.804		FAC SEX15		PGM C003		RDG 3608	
LEANOUT RE-RUNS 1 & 2 50 DEG HUM = 60 % 1 1/2 T OPEN MODF = 1.0000 NO. SCANS = 5															
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 29.000				RATED HP. = 160.00		HC RATIO = 2.1250			
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		51.819		28.999		15.104		68.545		0.33317		14.247			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		84.024		5.7126		44.543		3.9520		7.0117		6.1527			
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		59.391		-0.027953		0.85048		0.00000		57.986		37.520			
REL-HUM		1		2		HUMIDITY		H2O VAPOR		CORRECTED HP					
		57.986		32.331		34.024		0.78130		0.42850					
ENG. COND.		F/A DRY		F/A WET		FOW. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.10229		0.10180		1.5268		599.28		600.42		3.7587		0.42889	
WET CORRECTION FACTOR = 0.89173				EXHAUST MOLE. WT. = 26.077				EXHAUST DENSITY = 0.067520				EXHAUST FLOW RATE = 1124.0			
MEASURED CONC.		PART PER MILLION WET		PER CENT		CO DRY		CO2 DRY		O2 DRY					
		HC PPM		NOX PPM		9.5899		6.6161		4.0820					
		44150.		4.4304		8.5517		5.8998		3.6401					
CORRECTED CONC. TO WET BASIS															
EMISSION RATE		HC		NOX		CO									
		1.7815		0.00059257		6.9781									
EMISSION MASS/MODE		0.029691		9.3762E-06		0.11630									
EMISSION MASS/RATED HP		0.00018557		5.1726E-08		0.00072684									
MODE FMS./STD. CYCLE %		9.7668		0.0041151		1.7307									
CAL. FUEL AIR RATIO = 0.10048				MEAS. FUEL AIR RATIO = 0.10229				DIFF MEAS. & CAL. F/A PERCENT = -1.7762							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		212.30		240.24		215.50		228.49							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		877.91		-454.00		207.01		451.03		571.15		570.54			
ENGINE OIL		FOILT		SOILT		OILP		MANIFOLD PRESSURE = 12.945							
		149.63		-17.309		47.013									
DYNO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.016									
		8.4824		595.02											
INDUCTION AIR		TAIPT1		TAIPT2		TAIRT1		TAIRT2							
		50.069		51.819		65.184		44.835							
ORIFICE AIR		TEMP		DELTA P		DREF		FLOW							
		88.465		1.0262		55.247		1421.2							
CYL TEMP. = 82.134				HEATER TEMP = 87.660				COOLER TEMP = 34.007							

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NASA-LEWIS PRELIMINARY DATA 04/22/76 CADDEII REC 04/22/76 20:03:38.322 FAC SEX15 PGM C003 RDG 3609

LEANOUT RE-RUNS 1 & T 50 DEG HUM = 60 % 1 1/2 T OPEN MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.000 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	51.127	29.000	20.714	94.124	0.45483	14.245

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	84.200	5.7045	44.539	10.906	9.3939	6.1623

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	60.628	-0.045388	0.84605	0.00000	59.139	37.370

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	59.139	42.928	33.825	0.77675	0.83789

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.099804	0.099324	1.4895	1196.2	1195.6	3.5837	0.83901

WET CORRECTION FACTOR = 0.85918 EXHAUST MOLE. WT. = 26.238 EXHAUST DENSITY = 0.067938 EXHAUST FLOW RATE = 1530.4

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	14387.	10.021	12.001	8.6679	0.47339	
CORRECTED CONC. TO WET BASIS			10.311	7.4472	0.40672	

	HC	NOX	CO
EMISSION RATE	0.79047	0.0018250	11.456
EMISSION MASS/MODE	0.14492	0.00033458	2.1002
EMISSION MASS/RATED HP	0.00090574	2.0912E-06	0.013126
MODE EMIS./STD. CYCLE %	47.671	0.13941	31.253

CAL. FUEL AIR RATIO = 0.099512 MEAS. FUEL AIR RATIO = 0.099804 DIFF MEAS. & CAL. F/A PERCENT = -0.29204

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	306.67	325.76	309.59	327.10

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1318.2	-454.00	119.66	859.25	709.75	709.41

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	155.67	328.57	56.510	8.7247

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	4.4428	1181.9	29.042

INDUCTION AIR	TAIPT1	TAIPT2	TAIRT1	TAIRT2
	49.658	51.127	155.67	44.177

ORIFICE AIR	TEMP	DELTAP	ORIF	FLOW
	88.867	3.9651	55.116	2727.2

CELL TEMP. = 83.067 HEATER TEMP = 87.612 COOLER TEMP = 33.788

NASA-LEWIS		PRELIMINARY DATA		04/22/76	CADDEII	REC 04/22/76 20:03:59.483		FAC SEX15	PG4 C003	RDG 3610
LEANOUT RE-RUNS I & T 50 DEG HUM = 60 % 1 1/2 T OPEN MODE = 6.0000						NO. SCANS = 5				
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PPESSURE = 29.000			RATED HP. = 160.00		HC RATIO = 2.1250		
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL				
	51.245	28.996	21.389	97.160	0.46918	14.244				
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP				
	84.305	5.7042	44.536	10.979	9.4719	6.1599				
COOLING AIR	TEMP	UNDER-HOOD	DEI-HOOD	FLOW	REL-HUM	DEW-POINT				
	60.718	-0.013284	0.92216	0.00000	58.833	37.350				
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP					
	58.833	48.607	33.803	0.77622	1.0680					
ENG. COND.	F/A DRY	F/A WET	FQU. RATIO	RPM-1	RPM-2	TORQUE	BHP			
	0.097488	0.097019	1.4550	1196.9	1198.8	4.6921	1.0693			
WET CORRECTION F		TOP = 0.84983		EXHAUST MOLE. WT. = 26.392		EXHAUST DENSITY = 0.068336		EXHAUST FLOW RATE = 1567.3		
MEASURED CONC.	PART PER MILLION WET		PER CENT		713					
	HC PPM	NOX PPM	CO DRY	CO2 DRY						
	14336.	9.8980	12.058	8.7367						
CORRECTED CONC. TO WET BASIS			10.247	7.4247	0.37321					
EMISSION RATE	HC	NOX	CO							
	0.80663	0.0018460	11.660							
EMISSION MASS/MODE	0.040332	9.2301E-05	0.58299							
EMISSION MASS/RATED HP	0.00025207	5.7688E-07	0.0036437							
MODE EMIS./STD. CYCLE %	13.267	0.038459	8.6754							
CAL. FUEL AIR RATIO = 0.099618		MEAS. FUEL AIR RATIO = 0.097488		DIFF MEAS. & CAL. F/A PERCENT = 2.1846						
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4						
	298.03	317.23	301.33	320.13						
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2				
	1039.3	-454.00	40.180	279.83	694.25	693.22				
ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 8.7109						
	155.60	-33.922	56.634							
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.147							
	10.031	1197.1								
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2						
	49.722	51.245	60.199	44.276						
ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW						
	88.989	2.0177	55.176	1971.7						
CELL TEMP. = 83.34R		HEATER TEMP = 87.432		COOLER TEMP = 33.733						

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NASA-LEWIS PRELIMINARY DATA 04/22/76 CADDEII REC 04/22/76 20:24:40.789 FAC SEX15 PGM C003 R0G 3611

LEANOUT RE-RUNS 1 & T 50 DEG HUM = 80 % 1 1/2 T CLOS MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.000 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	52.847	28.997	10.760	48.657	0.31427	14.245

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	85.551	5.8347	44.503	3.9485	3.1263	6.1884

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	59.545	-0.039853	0.88258	0.00000	73.991	44.795

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	73.991	65.352	45.212	1.0382	0.22716

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	PPM-1	RPM-2	TORQUE	BHP
	0.064252	0.063839	0.95898	592.50	595.34	2.0085	0.22659

WET CORRECTION FACTOR = 0.87284 EXHAUST MOLE. WT. = 28.794 EXHAUST DENSITY = 0.074555 EXHAUST FLOW RATE = 698.79

MEASURED CONC.	PART PER MILLION WET	NOX PPM	CO DRY	PER CENT	CO2 DRY	O2 DRY
	15198.	31.753	1.0103	12.730	4.7519	
CORRECTED CONC. TO WET BASIS			0.88181	11.112	4.1476	

EMISSION RATE	HC	NOX	CO
	0.38128	0.0026405	0.44736
EMISSION MASS/MODE	0.0063546	4.4008E-05	0.0074550
EMISSION MASS/RATED HP	3.9716E-05	2.7505E-07	4.6600E-05
MODE EMISS./STD. CYCLE	2.0903	0.019336	0.11095

CAL. FUEL AIR RATIO = 0.063153 VEAS. FUEL AIR RATIO = 0.064252 DIFF MEAS. & CAL. F/A PERCENT = -1.7093

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	220.40	257.35	245.82	263.49

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	417.85	-454.00	189.57	1205.7	709.15	708.51

ENGINE OIL	ENTLT	SOILT	OILP	MANIFOLD PRESSURE = 11.545
	175.07	220.64	44.636	

DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.248
	5.3645	586.86	

INDUCTION AIR	TAIPT1	TAIPT2	TAIRT1	TAIRT2
	50.963	57.847	-53.872	45.283

ORIFICE AIR	TEMP	DELTAP	ORF	FLOW
	88.631	3.9603	55.042	2726.1

CFLI TEMP. = 82.451 HEATED TEMP = 87.508 COILIR TEMP = 34.435

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NASA-LEWIS PRELIMINARY DATA 04/22/76 CADDEII RFC 04/22/76 20:29:03.578 FAC SEX15 PGM C033 RDG 3613

LEANOUT RE-RUNS I & T 50 DEG HUM = 80 % 1 1/2 T CLOS MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.000 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	52.629	28.997	15.374	72.697	0.46765	14.245

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIF
	85.121	5.7936	44.515	7.0979	5.6976	6.1746

COOLING AIR	TEMP	INDEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT
	63.087	-0.027676	0.90998	0.00000	74.290	44.690

REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP
	74.290	45.521	45.330	1.0340 1.0245

FNG. CO. D.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.078374	0.077873	1.1698	1203.7	1204.6	4.4588	1.0219

WET CORRECTION FACTOR = 0.83242 EXHAUST MOLE. WT. = 27.811 EXHAUST DENSITY = 0.072010 EXHAUST FLOW RATE = 1095.1

MEASURED CONC.	PART PER MILLION WFT	PER CENT
HC PPM	CO DRY	CO2 DRY
3085.3	6.2824	13.153
CORRECTED CONC. TO WET BASIS	5.2296	10.949

EMISSION RATE	HC	NOX	CO
	0.12130	0.0071231	4.1579
EMISSION MASS/MODE	0.022238	0.0013059	0.76228
EMISSION MASS/PATED HP	0.00013899	8.1618E-06	0.0047643
MODE EMIS./STD. CYCLE %	7.3153	0.54412	11.343

CAL. FUEL AIR RATIO = 0.079535 MEAS. FUEL AIR RATIO = 0.078374 DIFF MEAS. & CAL. F/A PERCENT = 1.4809

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	358.76	379.65	365.78	390.99

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1384.0	-454.00	-90.659	1086.0	853.89	854.15

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 7.5747
	176.84	329.69	53.985	

DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.058
	6.1926	1208.8	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	50.981	52.629	95.388	45.255

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	89.879	2.9718	55.452	2365.0

CELL TEMP. = 83.471 HEATER TEMP = 87.528 COOLER TEMP = 34.881

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NASA-LEWIS PRELIMINARY DATA 04/22/76 CADDEII REC 04/22/76 20:29:24.991 FAC SEX15 PGM C003 RDG 3614

LEAFOUT RF-RUNS I & T 50 DEG HUM = 80 % 1 1/2 T CLOS MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BARMETRIC PRESSURE = 29.000 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	52.802	29.005	15.355	73.978	0.47476	14.248

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	85.410	5.7984	44.507	7.0642	5.6136	6.1743

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	63.141	-3.031274	0.87787	0.00000	73.662	44.635

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	73.662	64.764	44.923	1.0316	0.91107

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.075881	0.075397	1.1326	1203.0	1204.7	3.9671	0.90868

WET CORRECTION FACTOR = 0.82407 EXHAUST MOLE. WT. = 28.016 EXHAUST DENSITY = 0.072540 EXHAUST FLOW RATE = 1103.8

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	O2 DRY
	2393.2	56.176	5.8841	13.618
CORRECTED CONC. TO WET BASIS			4.8489	11.222

	HC	NOX	CO
EMISSION RATE	0.094831	0.0073785	3.8856
EMISSION MASS/MODE	0.0047416	0.00036892	0.19428
EMISSION MASS/FATED HP	2.9635E-05	2.3058E-06	0.0012142
MODE EMIS./STD. CYCLE %	1.5597	0.15372	2.8910

CAL. FUEL AIR RATIO = 0.073319 MEAS. FUEL AIR RATIO = 0.075881 DIFF MEAS. & CAL. F/A PERCENT = 3.2125

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	344.98	365.29	352.05	377.33

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1734.7	-454.00	-224.62	493.08	833.04	832.82

ENGINE OIL	OILT	SOILT	OILP	MANIFOLD PRESSURE = 7.6528
	177.06	45.410	54.205	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.054
	11.298	1178.9	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	51.136	52.802	150.26	45.291

CRITICE AIR	TEMP	DELTA P	ORFP	FLOW
	89.748	2.0207	55.964	1971.7

CELL TEMP. = 83.778 HEATER TEMP = 87.591 COOLER TEMP = 34.835

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NASA-LEWIS PRELIMINARY DATA 04/22/76 CADDETT RFC 04/22/76 20:40:42.452 FAC SEX15 PGM C033 RDG 3618

LEANOUT PE-RUNS I & T 50 DEG HUM = 80 7/8 T CLOSED MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.000 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	52.966	28.992	9.3377	42.110	0.27936	14.244

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	82.979	5.8005	44.570	3.9579	3.8524	6.1749

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	61.538	-0.039300	0.85269	0.00000	75.642	45.490

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	75.642	36.550	46.439	1.0664	0.62587

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.091484	0.090881	1.3654	614.46	616.50	5.3339	0.62404

WET CORRECTION FA TR = 0.87626 EXHAUST MOLE. Wt. = 26.810 EXHAUST DENSITY = 0.069417 EXHAUST FLOW RATE = 666.14

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	14321.	15.832	8.0940	8.9182	1.6279
CORRECTED CONC. TO WET BASIS			7.0925	7.8147	1.4264

	HC	NOX	CO
EMISSION RATE	0.39022	0.0012550	3.4301
EMISSION MASS/MODE	0.0065054	2.0916E-05	0.057163
EMISSION MASS/RATED HP	4.0659E-05	1.3073E-07	0.00035730
MODE EMIS./STO. CYCLE %	2.1399	0.0087152	0.85671

CAL. FUEL AIR RATIO = 0.088954 MEAS. FUEL AIR RATIO = 0.091484 DIFF MEAS. & CAL. F/A PERCENT = -2.8745

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	233.40	296.23	276.81	298.21

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SFXT-1	SEXT-2
	866.10	-454.00	-375.66	694.38	722.15	720.23

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 10.507
	172.59	264.05	45.028	

DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 28.930
	1.9442	609.12	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	51.090	52.966	111.34	46.502

PIPEICE AIR	TEMP	DELTAP	ORFP	FLOW
	87.573	1.0620	55.139	1446.5

CELL TEMP. = 81.210 HEATER TEMP = 87.342 COOLER TEMP = 35.409

NASA-LFWIS PRELIMINARY DATA 04/22/76 CADDEII 3FC 04/22/76 20:41:03.687 FAC SFX15 PGM C003 RDG 3619

LEANOUT RE-RUNS I & T 50 DEG HUM = 80 % 3/4 T CLOSED MODE = 7.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.000 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	53.129	29.004	9.4985	42.824	0.28393	14.241

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	83.181	5.8026	44.565	3.9557	3.8614	6.1839

COOLING AIR	TEMP	WHEEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	61.493	-0.039023	0.90085	0.00000	75.133	45.470

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	75.133	60.614	46.412	1.0658	0.58188

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.090159	0.089576	1.3458	607.26	608.46	5.0172	0.58011

WET CORRECTION FACTOR = 0.87099 EXHAUST MOLE. WT. = 26.905 EXHAUST DENSITY = 0.069662 EXHAUST FLOW RATE = 674.24

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM	CO2 DRY
	19197.	8.8133
CORRECTED CONC. TO WET BASIS	14.689	1.7945
	6.9942	1.5630

EMISSION RATE	HC	NOX	CO
	0.44048	0.0011786	3.4187
EMISSION MASS/MODE	0.0073413	1.9643E-05	0.056979
EMISSION MASS/RATED HP	4.5883E-05	1.2277E-07	0.00035612
MODE EMIS./STD. CYCLE %	2.4149	0.0081847	0.84790

CAL. FUEL AIR RATIO = 0.089302 MEAS. FUEL AIR RATIO = 0.090169 DIFF MEAS. & CAL. F/A PERCENT = -0.96252

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	272.43	295.68	265.62	286.99

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1025.9	-454.00	-454.00	6.3167	708.34	706.16

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 10.632
	171.98	-28.194	44.940	

DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 28.832
	1.4113	598.74	

INDUCTION AIR	IAIRT1	IAIPT2	TAIRT1	TAIRT2
	51.227	53.129	155.45	46.556

CRITICE AIR	TEMP	DELTAP	ORFP	FLOW
	87.582	4.9451	55.188	3033.7

CELL TEMP. = 81.267 HEATER TEMP = 87.356 COOLER TEMP = 35.427

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NASA-LEWIS PRELIMINARY DATA 04/22/76 CADDEIT REC 04/22/76 20:46:48.536 FAC SEX15 PGM C033 RDG 3620

LEANOUT RE-RUNS I & T 50 DEG HUM = 80 % 3/4 T CLOSED MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.000 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	53.266	29.000	17.730	79.977	0.52811	14.245

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	83.506	5.7537	44.557	8.5486	6.9007	6.1626

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	62.523	-0.050647	0.83221	0.00000	74.474	45.370

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	74.474	55.083	46.223	1.0614	0.86771

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.086283	0.085717	1.2878	1208.1	1208.3	3.7587	0.86460

WET CORRECTION FACTOR = 0.84814 EXHAUST MOLE WT. = 27.192 EXHAUST DENSITY = 0.070407 EXHAUST FLOW RATE = 1241.4

MEASURED CONC.	HC PPM	NOX PPM	CO DRY	PER CENT CO2 DRY	O2 DRY
	5286.5	31.933	9.0134	9.0968	0.22774
CORRECTED CONC. TO WET BASIS			7.6446	7.7153	0.19316

	HC	NOX	CO
EMISSION RATE	0.23561	0.0047175	6.8899
EMISSION MASS/MODE	0.043195	0.00086487	1.2632
EMISSION MASS/RATED HP	0.00026997	5.4055E-06	0.0078447
MODE EMISS./STD. CYCLE %	14.209	0.36036	18.797

CAL. FUEL AIR RATIO = 0.090006 MEAS. FUEL AIR RATIO = 0.086283 DIFF MEAS. & CAL. F/A PERCENT = 4.3145

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	288.65	302.83	292.11	310.07

EXT GAS TEMP DEG.F	FXT-1	FXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1068.0	-454.00	-432.41	699.76	670.15	668.05

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	172.43	291.26	55.518	7.7986

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	5.8830	1196.7	29.127

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	51.819	53.266	106.58	46.424

CRUISE AIR	TEMP	DELTAP	ORFP	FLOW
	88.299	3.0047	55.168	2380.9

CELL TEMP. = 82.029 HEATER TEMP = 87.189 COOLER TEMP = 35.582

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PRELIMINARY DATA

04/22/76

CARDELL

REC 04/22/76 20:55:57.921

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PGM C003

RDG 3623

LEANOUT RE-RUNS T &amp; T 50 DEG HUM = 80 &amp; 3/4 T CLOSED MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.000 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	53.802	28.995	18.124	81.781	0.54421	14.247

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIF
	84.279	5.7423	44.536	8.9428	7.5127	6.1626

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT
	62.907	-0.040130	0.84134	0.00000	73.596	45.575

RFL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	73.596	49.939	46.581	1.0697	1.2711

ENG. CO. I.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.091854	0.091257	1.3711	1203.1	1203.8	5.5255	1.2657

WET CORRECTION FACTOR = 0.85711 EXHAUST MOLE. WT. = 26.783 EXHAUST DENSITY = 0.069346 EXHAUST FLOW RATE = 1295.5

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	NOX PPM	CO DRY
7027.7	23.913	10.060
		8.5170
		0.27935
CORRECTED CONC. TO WET BASIS		0.23943

	HC	NOX	CO
EMISSION RATE	0.32685	0.0036866	8.1098
EMISSION MASS/MODE	0.016342	0.00018433	0.40549
EMISSION MASS/RATED HP	0.00010214	1.1521E-06	0.0025343
MODE EMIS./STD. CYCLE %	5.3757	0.076803	6.0341

CAL. FUEL AIR RATIO = 0.093741 MEAS. FUEL AIR RATIO = 0.091864 DIFF MEAS. &amp; CAL. F/A PERCENT = 2.0429

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	259.75	285.38	271.76	290.44

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	754.49	-454.00	254.52	-92.019	608.96	606.84

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE
	170.53	343.22	54.561	7.9192

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	3.1251	1211.0	29.133

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	52.429	53.802	-115.86	46.303

OPTIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	88.709	2.9564	55.177	2361.6

CELL TEMP. = 82.609 HEATER TEMP = 85.981 COOLER TEMP = 35.682

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NASA-LEWIS		PRELIMINARY DATA		04/22/76	CADDFII	REC 04/22/76 21:01:03.331	FAC SEX15	PGM C033	RDG 3624
LEANDUT RE-RUNS I & T 50 DEG HUM = 80 % NEUTRAL				MODE = 1.0000		NO. SCANS = 5			
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.000		RATED HP. = 160.00		HC RATIO = 2.1250	
COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL			
	51.810	28.997	11.440	51.687	0.34701	14.245			
COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP			
	91.474	5.7717	44.609	3.9579	4.7825	6.1932			
COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT			
	58.379	-0.035707	0.93029	0.00000	79.881	45.805			
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP				
	79.881	52.753	47.001	1.0793	0.50665				
ENG. COND.	F/A DRY	F/A WET	EQ. RATIO	RPM-1	RPM-2	TORQUE	BHP		
	0.092536	0.091919	1.3811	600.00	599.16	4.4254	0.50557		
WET CORRECTION FACTOR = 0.87943			EXHAUST MOLE. WT. = 26.735		EXHAUST DENSITY = 0.069223		EXHAUST FLOW RATE = 820.71		
MEASURED CONC.	PART PER MILLION WET		PER CENT						
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY				
	30509.	4.9465	8.7044	6.8746	3.5298				
CORRECTED CONC. TO WET BASIS			7.6549	6.0457	3.1042				
EMISSION RATE	HC	NOX	CO						
	0.89890	0.00048310	4.5611						
EMISSION MASS/MODE	0.014982	8.0516E-06	0.076018						
EMISSION MASS/PATED HP	9.3636E-05	5.0323E-08	0.00047411						
MODE EMIS./STD. CYCLE %	4.9282	0.0033548	1.1312						
CAL. FUEL AIR RATIO = 0.093703		MEAS. FUEL AIR RATIO = 0.092536		DIFF MEAS. & CAL. F/A PERCENT = 1.2611					
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4					
	277.88	292.45	271.40	293.26					
EXT GAS TEMP DEG.F	FXT-1	FXT-2	FXT-3	FXT-4	SXT-1	SXT-2			
	1197.1	-454.00	314.73	720.25	721.81	721.38			
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 11.400					
	170.22	284.54	44.624						
DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 28.701						
	7.9712	592.56							
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2					
	50.151	51.810	-36.608	45.547					
OPTIFIC AIR	TEMP	DELTA P	ORFP	FLOW					
	26.786	3.0170	55.258	2388.9					
CELL TEMP. = 80.769		HEATER TEMP = 85.915		COOLER TEMP = 35.727					

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NASA-LEWIS		PRELIMINARY DATA		04/22/76		CADDEII		REC 04/22/76 21:01:24.089		FAC SEX15		PGM C003		RDG 3525	
LEANOUT PE-RUNS I & T 50 DEG HUM = 80 % NEUTRAL															
MODE = 7.0000															
NO. SCANS = 5															
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 25.000				RATED HP. = 160.00		HC RATIO = 2.1250			
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		52.047		28.999		11.697		51.921		0.34915		14.244			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		81.580		5.7599		44.507		3.9611		4.7825		6.1821			
COOLING AIR		TEMP		DEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		58.813		-0.034871		0.89448		0.00000		79.304		45.845			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		79.304		41.090		47.073		1.0810		0.37465					
ENG. COND.		F/A DRY		F/A WET		EQJ. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.092111		0.091495		1.3748		585.96		587.10		3.3503		0.37379	
WET CORRECTION FACTOR = 0.88299				EXHAUST MOLF. WT. = 26.765				EXHAUST DENSITY = 0.069301				EXHAUST FLOW RATE = 823.26			
MEASURED CONC.		PART PER MILLION WET				PER CENT									
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		30309.		4.7675		8.5411		6.8264		3.7062					
CORRECTED CONC. TO WET BASIS						7.5417		6.0276		3.2725					
		HC		NOX		CO									
EMISSION RATE		0.89578		0.00046706		4.5075									
EMISSION MASS/MODE		0.014930		7.7843E-06		0.075126									
EMISSION MASS/RATED HP		9.3311E-05		4.3652E-08		0.00046953									
MODE EMISS./STD. CYCLE %		4.9111		0.0022435		1.1170									
CAL. FUEL AIR RATIO = 0.092558				MEAS. FUEL AIR RATIO = 0.092111				DIFF MEAS. & CAL. F/A PERCENT = 0.48590							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		266.51		281.77		259.00		280.26							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		1540.9		-454.00		196.20		58.999		707.14		705.99			
ENGINE OIL		TEMP		SOILT		SOILT		MANIFOLD PRESSURE = 11.583							
		159.79		88.279		44.508									
DYNO COND.		TORQUE		RPM				CYL. BACK PRESSURE = 29.231							
		7.3303		585.48											
INDUCTION AIR		TAIPT1		TAIFT2		TAIRT1		TAIPT2							
		50.289		52.047		-78.139		45.725							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		85.795		2.9729		55.316		2372.1							
CELL TEMP. = 80.904				HEATER TEMP = 85.802				COOLER TEMP = 35.727							

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NASA-LEWIS	PRELIMINARY DATA	04/22/76	CADDETT	REC 04/22/76 21:04:58.282	FAC SEX15	PGM C003	RDG 3525
LEANOUT RE-RUNS I & T 50 DEG HUM = 80 % NEUTRAL      MODE = 2.0000      NO. SCANS = 5							
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.000		RATED HP. = 160.00		HC RATIO = 2.1250
COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	51.345	29.000	23.455	105.99	0.70580	14.248	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	82.187	5.6616	44.591	12.901	11.326	6.1455	
COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT	
	60.745	-0.036809	0.97262	0.00000	80.618	45.595	
RFL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	80.618	32.655	46.513	1.0704	1.1906		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10686	0.10615	1.5549	1196.1	1198.0	5.2172	1.1882
WET CORRECTION F/A		TP = 0.87235	EXHAUST MLE. WT. = 25.793		EXHAUST DENSITY = 0.066785		EXHAUST FLOW RATE = 1767.2
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	CO2 DRY		
	20828.	7.3187	12.213	6.6597	0.80114		
CORRECTED CONC. TO WET BASIS			10.554	5.8096	0.69888		
	HC	NOX	CO				
EMISSION RATE	1.3214	0.0015391	13.669				
EMISSION MASS/MODE	0.24226	0.00028217	2.5061				
EMISSION MASS/RATED HP	0.0015141	1.7636E-06	0.015663				
MODE EMIS./STD. CYCLE %	79.690	0.11757	37.293				
CAL.FUEL AIR RATIO = 0.10815		MEAS. FUEL AIR RATIO = 0.10686		DIFF MEAS.& CAL. F/A PERCENT = 1.2095			
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	278.44	289.00	274.11	288.06			
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	1399.1	-454.00	477.99	751.17	657.44	655.93	
ENGINE OIL	EGILT	SGILT	OILP	MANIFOLD PRESSURE = 9.4708			
	168.85	282.25	55.778				
DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.098				
	8.2160	1190.7					
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2			
	50.169	51.345	-32.500	45.571			
ORIFICE AIR	TEMP	DELTAP	ORIF	FLOW			
	87.162	1.0310	55.106	1426.1			
CELL TEMP. = 81.430		HEATER TEMP = 85.739		COOLER TEMP = 35.181			

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NASA-LEWIS PRELIMINARY DATA 04/22/76 CADDEII REC 04/22/76 21:05:18.883 FAC SEX15 PGM C003 RDG 3527

LEANOUT RE-RUNS T & T 50 DEG HUM = 80 % NEUTRAL MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.000 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	51.546	28.998	22.989	103.44	0.69074	14.252

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	82.249	5.5567	44.589	12.541	11.023	6.1488

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	60.844	-0.037639	0.87704	0.00000	80.267	45.675

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	80.267	45.233	45.744	1.0734	1.1426

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10657	0.10585	1.5905	1195.4	1197.9	5.0088	1.1400

WET CORRECTION FACTOR = 0.86806 EXHAUST MOLE WT. = 25.811 EXHAUST DENSITY = 0.066831 EXHAUST FLOW RATE = 1723.0

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	21532.	7.3427	11.947	6.6887	0.53817
CORRECTED CONC. TO WET BASIS			10.371	5.8051	0.46717

	HC	NOX	CO
EMISSION RATE	1.3319	0.0015056	12.973
EMISSION MASS/MODE	0.066596	7.5278E-05	0.64866
EMISSION MASS/PATED HP	0.00041522	4.7049E-07	0.0040541
MODE EMIS./STD. CYCLE %	21.906	0.031366	9.6526

CAL. FUEL AIR RATIO = 0.10954 MEAS. FUEL AIR RATIO = 0.10657 DIFF MEAS. & CAL. F/A PERCENT = 2.7926

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	274.78	286.31	269.97	285.91

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1517.2	-454.00	302.63	177.90	646.60	644.92

ENGINE OIL	FILT	SOILT	OILP	MANIFOLD PRESSURE = 9.3706
	168.37	30.025	55.918	

DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 28.958
	3.3195	1186.6	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	50.306	51.546	95.175	45.668

DRYICE AIR	TEMP	DELTA P	DRFP	FLOW
	87.214	2.0128	55.078	1972.6

CIL TEMP. = 81.483 HEATER TEMP = 85.491 COOLER TEMP = 35.108

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NASA-LEWIS PRELIMINARY DATA 04/22/76 CADDEII REC 04/22/75 21:12:43.944 FAC SEX15 PG4 C003 RDR 3628

LEANOUT RE-RUNS 1 & 2 50 DEG HUM = 80 % 3/4 T OPEN MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DE3. BAROMETRIC PRESSURE = 29.000 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	53.484	29.004	13.635	61.682	0.40623	14.244

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW T30N	FIPD
	83.058	5.7297	44.568	7.6431	6.3185	5.1900

COOLING AIR	TEMP	MODEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	61.927	-0.043728	0.81145	0.00000	73.685	45.300

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	73.685	61.678	46.101	1.0586	0.89561

ENG. COND.	F/A DRY	F/A WET	FUEL RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10244	0.10177	1.5289	602.76	604.74	7.7941	0.89336

WET CORRECTION FACTOR = 0.89729 EXHAUST MOLE WT. = 26.058 EXHAUST DENSITY = 0.067496 EXHAUST FLOW RATE = 1013.5

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	38098.	4.7585	9.7382	5.9855	3.9760
CORRECTED CONC. TO WET BASIS			8.7379	5.2819	3.4779

	HC	NOX	CO
EMISSION RATE	1.3862	0.00057389	6.4293
EMISSION MASS/MODE	0.023103	9.5649E-06	0.10715
EMISSION MASS/RATED HP	0.00014439	5.9781E-08	0.00066572
MODE FMIS./STD. CYCLE %	7.5997	0.0039854	1.5946

CAL. FUEL AIR RATIO = 0.10048 MEAS. FUEL AIR RATIO = 0.10244 DIFF MEAS. & CAL. F/A PERCENT = -1.9106

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	251.87	269.17	250.75	269.46

FXT GAS TEMP DEG.F	FXT-1	FXT-2	FXT-3	FXT-4	SEXT-1	SEXT-2
	1534.5	-454.00	321.25	643.36	563.89	563.46

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 12.606
	161.01	180.44	46.005	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 28.844
	3.7084	593.10	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	51.883	53.484	25.422	44.970

CRIFICE AIR	TEMP	DELTA P	ORF3	FLOW
	88.229	1.0154	55.131	1414.1

CELL TEMP. = 92.311 HEATER TEMP = 86.552 COOLER TEMP = 34.116

NASA-LEWIS		PRELIMINARY DATA		04/22/76	CADDEIT	REC 04/22/76 21:13:06.636		FAC SEX15	PGM C003	RDG 3629	
LEANOUT RE-RUNS I & T 50 DEG HUM = 80 % 3/4 T JPEV MODE = 7.0000 NO. SCANS = 5											
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.000			RATED HP. = 160.00		HC RATIO = 2.1250		
COMP. AIR		TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL				
		53.693	29.999	13.396	60.556	0.40075	14.246				
COMB. FUEL		TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP				
		83.225	5.7267	44.564	7.7586	6.3336	6.1556				
COOLING AIR		TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT				
		61.872	-0.039300	0.85131	0.00000	73.483	45.430				
PFL-HUM		1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP					
		73.483	47.109	45.325	1.0638	0.47170					
ENG. COND.		F/A DRY	F/A WET	EQU. PATIO	RPM-1	RPM-2	TORQUE	BHP			
		0.10459	0.10390	1.5511	505.52	603.84	4.0754	0.46987			
WET CORRECTION FACTOR = 0.90095				EXHAUST MOLE. WT. = 25.932		EXHAUST DENSITY = 0.067145			EXHAUST FLOW RATE = 1052.2		
MEASURED CONC.		PART PER MILLION WET			PER CENT		786				
		HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY					
		38890.	4.6825	9.6906	5.9889	3.7332					
CORRECTED CONC. TO WET BASIS					8.7307	5.3957	3.3634				
EMISSION RATE		HC		NOX	CO						
		1.3992		0.00055841	6.3522						
EMISSION MASS/MODE		0.023320		9.3069E-06	0.10587						
EMISSION MASS/PATED HP		0.00014575		5.9158E-08	0.00055158						
MODE EMIS./STD. CYCLE %		7.6710		0.0038779	1.5754						
CAL. FUEL AIR RATIO = 0.10114				MEAS. FUEL AIR RATIO = 0.10450		DIFF MEAS. & CAL. F/A PERCENT = -3.3024					
CYL TEMP DEG. F		CYL-1	CYL-2	CYL-3	CYL-4						
		242.81	261.22	241.44	259.50						
EXT GAS TEMP DEG. F		FXT-1	FXT-2	FXT-3	FXT-4	SFXT-1	SEXT-2				
		1349.0	-454.00	250.70	28.098	553.49	552.71				
ENGINE OIL		FOILT	SOILT	OILT	MANIFOLD PRESSURE = 12.493						
		160.35	-12.021	46.137							
DYNO COND.		TORQUE	RPM	CYL. BACK PRESSURE = 29.204							
		4.8821	592.56								
INDUCTION AIR		TAIRT1	TAIRT2	TAIRT1	TAIRT2						
		52.111	53.693	136.38	45.391						
ORIFICE AIR		TEMP	DELTA P	ORIF	FLOW						
		89.351	1.0582	55.210	1443.0						
CELL TEMP. = 82.134				HEATER TEMP = 86.545		COOLER TEMP = 34.052					

786

NASA-LEWIS PRELIMINARY DATA 04/22/76 CADDEII REC 34/22/76 21:16:26.468 FAC SEX15 PGM C003 RDG 3630

LEANOUT RE-RUNS I & T 50 DEG HUM = 80 % 3/4 T OPEN MODE = 2.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.000 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	53.339	29.009	20.543	92.880	0.61407	14.246

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	83.198	5.7000	44.565	10.584	9.1559	6.1553

COOLING AIR	TEMP	UDEL-HOOD	OFL-HOOD	FLOW	REL-HUM	DEW-POINT
	62.223	-0.039853	0.85542	0.00000	74.375	45.405

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	74.375	33.903	46.280	1.0627	0.98942

ENG. CORR.	F/A DRY	F/A WET	FUEL RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.098589	0.097941	1.4715	1194.5	1195.7	4.3338	0.98564

WET CORRECTION FACTOR = 0.85018 EXHAUST MOLF. WT. = 26.319 EXHAUST DENSITY = 0.068146 EXHAUST FLOW RATE = 1506.3

MEASURED CONC.	PART PER MILLION WET	NOX PPM	CO DRY	PER CENT CO2 DRY	O2 DRY
	12880.	12.374	11.400	7.5659	0.38956
CORRECTED CONC. TO WET BASIS			9.8059	6.5089	0.33509

EMISSION RATE	HC	NOX	CO
	0.69653	0.0022181	10.724
EMISSION MASS/MODE	0.12770	0.00040666	1.9660
EMISSION MASS/RATED HP	0.00079811	2.5415E-06	0.012288
MODE EMIS./STD. CYCLE %	42.006	0.16944	29.256

CAL. FUEL AIR RATIO = 0.10131 MEAS. FUEL AIR RATIO = 0.098589 DIFF MEAS. & CAL. F/A PERCENT = 2.7612

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	282.07	298.28	285.03	300.30

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1102.3	-454.00	514.66	517.22	601.52	600.36

ENGINE OIL	FOILT	SOILT	OIL2	MANIFOLD PRESSURE = 8.6286
	160.46	242.95	56.518	

DYNO COND.	TORQUE	PSM	CYL. BACK PRESSURE = 28.984
	5.4437	1191.6	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	52.056	53.339	129.99	45.307

ORIFICE AIR	TEMP	DELTA P	DRY	FLOW
	88.744	0.073307	55.303	272.18

CELL TEMP. = 82.903 HEATER TEMP = 86.483 COOLER TEMP = 33.715

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NASA-I EWS PRELIMINARY DATA 04/22/76 CADDEII REC 04/22/76 21:15:47.778 FAC SEX15 PGM C003 R0G 3631

LEANOUT RE-RUNS 1 & T 50 DEG HUM = 80 ± 3/4 T OPEN MODE = 6.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.000 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	53.402	28.998	20.548	92.907	0.61405	14.245

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	83.348	5.7015	44.561	10.684	9.2319	6.1539

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	62.349	-0.037085	0.91468	0.00000	74.173	45.395

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	74.173	46.919	46.265	1.0624	1.6350

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	PPM-1	PPM-2	TORQUE	BHP
	0.099367	0.098715	1.4831	1192.1	1195.1	7.1757	1.6287

WET CORRECTION FACTOR = 0.85217 EXHAUST MOL. WT. = 25.257 EXHAUST DENSITY = 0.068012 EXHAUST FLOW RATE = 1510.8

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	NOX PPM	CO DRY
13347.	11.976	11.440
CORRECTED CONC. TO WET BASIS		
	9.8634	6.5395

EMISSION RATE	HC	NOX	CO
	0.72393	0.0021531	10.819
EMISSION MASS/MODE	0.036196	0.00010766	0.54093
EMISSION MASS/RATED HP	0.00022623	6.7286E-07	0.0033108
MODE EMISS./STD. CYCLE %	11.907	0.044857	8.0495

CAL. FUEL AIR RATIO = 0.10138 MEAS. FUEL AIR RATIO = 0.099367 DIFF MEAS. & CAL. F/A PERCENT = 2.0213

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	277.27	293.91	280.24	296.09

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1670.2	-454.00	486.97	-185.68	591.36	590.01

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 8.5797
	160.02	-138.98	56.638	

DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 28.972
	8.2232	1188.9	

INDUCTION AIR	TAIPT1	TAIRT2	TAIRT1	TAIRT2
	52.101	53.402	154.09	45.251

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	88.771	2.9835	55.303	2371.8

CELL TEMP. = 82.944 HEATER TEMP = 85.462 COOLER TEMP = 33.624

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NASA-LEWIS PRELIMINARY DATA 04/22/76 CADDEII REC 04/22/76 21:24:12.441 FAC SEX15 PGM C003 RDG 3632

LEANOUT RE-RUNS I & T 50 DEG HUM = 80 % 1 1/2 T OPEN MODE = 1.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DFS. BAROMETRIC PRESSURE = 29.000 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	50.981	28.494	14.336	64.861	0.43272	14.246

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	80.893	5.7153	44.625	8.2536	6.8227	5.1521

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	60.718	-0.027399	0.85435	0.00000	81.854	45.640

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	81.854	59.174	46.700	1.0724	0.67514

ENG. COND.	F/A DRY	F/A WET	FOL. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10519	0.10449	1.5700	608.76	608.28	5.8172	0.67428

WET CORRECTION FACTOR = 0.89655 EXHAUST MOLE. WT. = 25.895 EXHAUST DENSITY = 0.067050 EXHAUST FLOW RATE = 1075.5

MEASURED CONC.	PART PER MILLION WET		PER CENT	CO DRY	CO2 DRY	O2 DRY
	HC PPM	NOX PPM				
	44376	4.2754	10.162	5.3616	4.2186	
CORRECTED CONC. TO WET BASIS			9.1105	4.8069	3.7822	

	HC	NOX	CO
EMISSION RATE	1.7135	0.00054722	7.1140
EMISSION MASS/MODE	0.028558	9.1204E-06	0.11857
EMISSION MASS/RATED HP	0.00017849	5.7062E-08	0.00074105
MODE EMIS./STD. CYCLE %	9.3942	0.0038002	1.7644

CAL. FUEL AIR RATIO = 0.10486 MEAS. FUEL AIR RATIO = 0.10519 DIFF MEAS. & CAL. F/A PERCENT = -0.31273

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	277.89	297.69	276.61	297.18

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1315.7	-454.00	283.22	872.99	621.39	621.74

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 12.940
	165.51	158.94	45.369	

DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.522
	1.7426	608.58	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	49.348	50.981	65.394	44.889

ORIFICE AIR	TEMP	DELTA P	ORIF. FLOW
	86.418	2.9748	55.229

CELL TEMP. = 80.231 HEATER TEMP = 86.310 COOLER TEMP = 34.207

ORIGINAL PAGE IS  
OF POOR QUALITY

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NASA-LEWIS		PRELIMINARY DATA		04/22/76		CADDEII		REC 04/22/76 21:24:33.631		FAC SEX15		PGM C003		RDG 3633	
LEANOUT PF-RUNS I & T 50 DEG HUM = 80 % 1 1/2 T OPEN MODE = 7.00:0										NO. SPANS = 5					
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.000				RATED HP. = 160.00		HC RATIO = 2.1250					
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		51.154		28.997		13.812		62.481		0.41727		14.245			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		81.130		5.7189		44.518		8.2561		6.8617		6.1680			
COOLING AIR		TEMP		UDEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		60.655		-0.039853		0.87345		0.00000		81.409		45.665			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		81.409		50.785		46.748		1.0735		0.42875					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.10982		0.10909		1.6391		604.92		604.26		3.7170		0.42812	
WET CORRECTION FACTOR = 0.90865				EXHAUST WILE. WT. = 25.617				EXHAUST DENSITY = 0.066329				EXHAUST FLOW RATE = 1551.7			
MEASURED CONC.		PART PER MILLION WET				PER CENT		CO2 DRY		O2 DRY					
		HC PPM		NOX PPM		CO DRY		5.4628		4.0142					
		44444.		4.5465		10.106		4.9637		3.6475					
CORRECTED CONC. TO WET BASIS						9.1825		4.9637		3.6475					
EMISSION RATE		HC		NOX		CO		7.0113							
		1.6781		0.00056901		9.4835E-06		0.11685							
EMISSION MASS/MODE		0.027968		5.9272E-08		0.00073034									
EMISSION MASS/RATED HP		0.00017480		0.0039514		1.7389									
MODE EMISS./STD. CYCLE %		9.2000		0.0039514		1.7389									
CAL. FUEL AIR RATIO = 0.10516				MEAS. FUEL AIR RATIO = 0.10982				DIFF MEAS. & CAL. F/A PERCENT = -4.2436							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		265.37		287.04		264.54		285.46							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		1669.5		-454.00		250.37		235.12		610.26		610.04			
ENGINE OIL		FOILT		SOILT		OIL <sup>2</sup>		MANIFOLD PRESSURE = 13.220							
		164.72		-53.624		45.317									
DYND COND.		TORQUE		RPM		CYL. BACK PRESSURE = 28.961									
		6.1134		595.32											
INDUCTION AIR		TAIPT1		TAIPT2		TAIPT1		TAIPT2							
		49.512		51.154		156.23		44.921							
ORIFICE AIR		TEMP		DELTA P		ORIF		FLOW							
		86.444		3.0803		55.219		2728.4							
CELL TEMP. = 80.205				HEATER TEMP = 86.310				COOLER TEMP = 34.289							

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NASA-LEWIS	PRELIMINARY DATA	04/22/76	CADDELL	REC 04/22/76 21:28:01.145	FAC SEX15	PSM C003	RDG 3534
LFANOUT RE-RUNS I & T 50 DEG HUM = 80 ± 1 1/2 T OPEN MODE = 2.0030 NO. SCANS = 5							
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.000		RATED HP. = 160.00		HC RATIO = 2.1250
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	50.999	29.000	21.321	96.477	0.63937	14.248	
COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	81.729	5.6892	44.603	11.259	9.7930	6.1581	
COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	60.835	-0.033211	0.84356	0.00000	81.273	45.470	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP			
	81.273	32.925	46.390	1.0653		1.1426	
ENG. COND.	F/A DRY	F/A WET	FQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.10151	0.10084	1.5150	1200.2	1201.8	4.9922	1.1408
WET CORRECTION FACTOR = 0.85454		EXHAUST MOLE. WT. = 26.128		EXHAUST DENSITY = 0.067651		EXHAUST FLOW RATE = 1580.3	
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	15050.	8.9029	11.768	7.2768	0.49623		
CORRECTED CONC. TO WET BASIS			15.174	6.2911	0.42901		
EMISSION RATE		HC	NOX	CO			
		0.85386	0.0016742	11.673			
EMISSION MASS/MODE		0.15654	0.00030694	2.1400			
EMISSION MASS/RATED HP		0.00097838	1.9184E-06	0.013375			
MODE EMIS./STD. CYCLE %		51.493	0.12789	31.845			
CAL. FUEL AIR RATIO = 0.10352		MEAS. FUEL AIR RATIO = 0.10151		DIFF MEAS. & CAL. F/A PERCENT = 1.9849			
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	269.38	298.63	273.28	289.00			
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	1294.9	-454.00	612.57	1110.3	603.00	601.52	
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 8.8558			
	163.18	275.91	55.986				
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.006				
	3.4635	1207.9					
INDUCTION AIR	IAIPT1	IAIPT2	TAIPT1	TAIPT2			
	49.722	50.999	127.65	44.948			
PRIFICE AIR	TEMP	DELTA P	ORF	FLOW			
	86.900	1.0431	55.273	1434.7			
CFLI TEMP. = 80.805		HEATED TEMP = 86.255		COOLER TEMP = 34.362			



NASA-LEWIS

PRELIMINARY DATA

04/22/76

CADDIE

REC 04/22/75 21:28:21.896

FAC SEX15

PGM C003

RDG 3635

LEANOUT RE-RUNS I &amp; T 50 DEG HUM = 80 % 1 1/2 T OPEN MODE = 6.0000

NJ. SCANS = 5

ENGINE TIMING = 25.000

DEG.

BAROMETRIC PPESSURE = 29.000

RATED HP. = 160.00

IC RATIO= 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	51.109	29.002	21.586	97.677	0.64850	14.249

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	81.844	5.6898	44.600	11.260	9.7630	6.1551

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	60.880	-0.045111	0.87511	0.00000	81.097	45.520

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	81.097	45.785	46.474	1.0672	1.3724

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.099951	0.099292	1.4918	1199.1	1200.2	6.0005	1.3700

WET CORRECTION FACTOR = 0.85973

EXHAUST MOLE. Wt. = 26.229

EXHAUST DENSITY = 0.067913

EXHAUST FLOW RATE = 1591.6

MEASURED CONC.	PART PER MILLION WFT		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	14851.	8.7329	11.719	7.3312	0.46881
CORRECTED CONC. TO WFT BASIS			10.075	6.3029	0.40305

	HC	NOX	CO
EMISSION RATE	0.84858	0.0016540	11.642
EMISSION MASS/MODE	0.042429	8.2699E-05	0.58208
EMISSION MASS/RATED HP	0.00026518	5.1697E-07	0.0036380
MODE EMISS./STD. CYCLE %	13.957	0.034458	8.6619

CAL. FUEL AIR RATIO = 0.10333

MEAS. FUEL AIR RATIO = 0.099951

DIFF MEAS. &amp; CAL. F/A PERCENT = 3.3804

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	266.42	285.18	270.44	286.29

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1077.5	-454.00	542.71	603.23	595.30	593.69

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE =
	162.81	-49.356	56.230	8.8428

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE =
	-1.4473	1201.3	28.978

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	49.850	51.109	134.64	44.972

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	86.987	1.9957	55.241	1965.1

CELL TEMP. = 80.963

HEATER TEMP = 86.241

COOLER TEMP = 34.408

NASA-LFWIS		PRELIMINARY DATA		04/23/76	CADDFII	REC 04/23/76 09:59:07.055		FAC SEX15	PGM C003	RDG 3637	
LEAN CUT PE-RUNS		TO CL APP 50 DEG.		HUM=60%		MODE = 4.0000		NO. SCANS = 5			
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.230		RATED HP. = 160.00		HC RATIO= 2.1250			
COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL					
	48.791	29.217	163.00	760.01	3.5053	14.637					
COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRCN	FPIP					
	69.985	5.4161	44.912	61.536	60.984	6.0822					
COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT					
	51.418	3.0061	3.9706	9969.7	63.288	36.885					
REL-HUM	1	2	HUMIDITY	% H2O VAPOR		CORRECTED HP					
	63.288	65.152	32.285	0.74137		118.95					
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	RHP				
	0.080241	0.079872	1.1976	2430.4	2432.9	257.89	119.34				
WET CORRECTION F <sub>W</sub>		COR = 0.85786		EXHAUST MOLE WT. = 27.551		EXHAUST DENSITY = 0.071622		EXHAUST FLOW RATE = 11511.			
MEASURED CONC.	PART PER MILLION WET		PER CENT								
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY						
	1332.8	432.96	6.1366	10.916	0.044484						
CORRECTED CONC. TO WET BASIS				5.2644	9.3646	0.038161					
EMISSION RATE	HC	NOX	CO								
	0.55083	3.59312	43.998								
EMISSION MASS/MODE	0.045903	0.049427	3.6665								
EMISSION MASS/RATED HP	0.00028689	0.00030892	0.022916								
MODE EMIS./STD. CYCLE %	15.100	20.595	54.561								
CAL. FUEL AIR RATIO = 0.080764		MEAS. FUEL AIR RATIO = 0.080241		DIFF MEAS. & CAL. F/A PERCENT = 0.55264							
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4							
	360.94	379.71	378.88	390.95							
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2					
	1252.1	-256.26	961.41	1962.4	1313.6	1310.1					
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 26.070							
	165.43	81.927	72.691								
DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.371								
	250.92	2313.7									
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2							
	48.389	48.791	-77.883	45.048							
PRIFICE AIR	TEMP	DELTA P	ORFP	FLOW							
	90.158	4.0826	54.512	2764.0							
CELL TEMP. = 77.593	HEAT EX TEMP = 88.975		COOLER TEMP = 37.155								

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NASA-LEWIS PRELIMINARY DATA 04/23/76 CADDELI REC 04/23/76 10:02:30.823 FAC SEX15 PGM C003 RDG 3638

LEANOUT RE-RUNS TO CL APP 50 DEG., HUM=60% MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CEM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	50.142	29.219	102.47	471.84	2.1899	14.469

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	72.159	5.4986	44.854	41.568	39.466	6.1095

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	51.437	2.9062	3.7351	9782.5	59.859	36.750

REL-HUM	1	2	HUMIDITY	H2O VAPOR CORRECTED HP
	59.859	65.999	32.488	0.74604 65.121

ENG. COND.	F/A DRY	F/A WET	FOL. RATIO	RPM-1	PPM-2	TORQUE	RHP
	0.083642	0.083256	1.2484	2351.3	2353.7	145.75	65.257

WET CORRECTION FACTOR = 0.86234 EXHAUST MOLE. WT. = 27.394 EXHAUST DENSITY = 0.070930 EXHAUST FLOW RATE = 7239.5

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	NOX PPM	CO DRY
1527.8	240.64	7.0579
CORRECTED CONC. TO WET BASIS		CO DRY
		9.0254

EMISSION RATE	HC	NOX	CO
EMISSION MASS/MODE	0.39706	0.20732	31.989
EMISSION MASS/PATED HP	0.039706	0.020732	3.1989
MODE EMIS./STD. CYCLE %	0.00024816	0.00012957	0.019992
	13.061	8.5381	47.603

CAL. FUEL AIR RATIO = 0.082994 MEAS. FUEL AIR RATIO = 0.083642 DIFF MEAS. & CAL. F/A PERCENT = -0.77504

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	315.82	326.96	321.07	325.36

EXT GAS TEMP DEG.F	FXT-1	FXT-2	FXT-3	FXT-4	SFXT-1	SFXT-2
	1370.7	-375.36	409.79	1619.2	1176.8	1178.3

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.332
	168.21	140.27	72.503	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.294
	141.54	2277.9	

INDUCTION AIR	TAIPT1	TAIPT2	TAIRT1	TAIRT2
	49.613	50.142	-76.906	45.507

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	90.385	4.9937	53.777	2767.2

CEIL TEMP. = 78.324 HEATER TEMP = 88.808 COOLER TEMP = 36.573

NASA-LEWIS PRELIMINARY DATA 04/23/76 CADDEII RFC 04/23/76 10:16:14.091 FAC SEX15 PGM C003 RDG 3639.

LEANOUT RE-RUNS TO CL APP 50 DEG., HUM=60% MODF = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	49.330	29.234	205.40	967.95	4.3092	14.828

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	69.974	5.3597	44.339	83.513	79.562	6.0144

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	53.039	2.9505	3.9103	9865.9	60.670	36.325

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	60.670	47.905	31.163	0.71561	154.49

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	RHP
	0.082197	0.081832	1.2268	2692.9	2696.8	294.15	150.87

WET CORRECTION FACTOR = 0.85665 EXHAUST MOLE. WT. = 27.507 EXHAUST DENSITY = 0.071221 EXHAUST FLOW RATE = 14768.

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	NOX PPM	CO DRY
1262.1	176.93	7.0371
CORRECTED CONC. TO WET BASIS		CO DRY
		6.0283
		9.0176
		0.0066407
		0.0056887

EMISSION RATE	HC	NOX	CO
EMISSION MASS/MODE	0.66915	0.31094	64.634
EMISSION MASS/PATED HP	0.0033458	0.0015547	0.32317
MODE EMIS./STD. CYCLE %	2.0911E-05	9.7168E-06	0.0020198
	1.1006	0.64779	4.8091

CAL. FUEL AIR RATIO = 0.082936 MEAS. FUEL AIR RATIO = 0.082197 DIFF MEAS. & CAL. F/A PERCENT = 0.89947

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	394.69	419.99	395.79	402.85

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	909.26	51.410	-226.63	1486.7	1380.2	1374.3

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE
	178.27	185.86	73.555	28.156

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE
	301.86	2626.6	29.411

INDUCTION AIR	TAIRT1	TAIPT2	TAIRT1	TAIRT2
	48.955	49.330	-49.949	46.353

CRIPICE AIR	TEMP	DELTA P	ORFP	FLOW
	93.646	4.3402	46.543	2847.7

CELL TEMP. = 78.665

HEATER TEMP = 89.293

COOLER TEMP = 60.688

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NASA-Lewis PRELIMINARY DATA 04/23/76 CADDILLAC REC 04/23/76 10:16:46.930 FAC SFX15 PGM C003 RDG 3640

LEAFOUT RE-RUNS TO CL APP 50 DEG., HUM=60% MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. PARAMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	49.366	29.255	205.32	967.82	4.2895	14.829

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	59.092	5.3567	44.936	81.468	79.487	6.0528

COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	PFL-HUM	DEW-POINT
	53.230	2.9743	3.8204	9910.4	60.324	36.215

RFL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	60.324	21.818	31.025	0.71244	155.26

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.082130	0.081768	1.2258	2695.0	2698.8	295.63	151.70

WET CORRECTION FACTOR = 0.85669 EXHAUST MOLE. WT. = 27.512 EXHAUST DENSITY = 0.071235 EXHAUST FLOW RATE = 14762.

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	1165.4	164.42	7.0439	10.512	0.015141
CORRECTED CONC. TO WET BASIS			6.0344	9.0053	0.012972

	HC	NOX	CO
EMISSION RATE	0.61764	0.28983	64.674
EMISSION MASS/MODE	0.0030982	0.0014442	0.32337
EMISSION MASS/RATED HP	1.9301E-05	9.2261E-06	0.0020210
MODE EMISS./STD. CYCLE %	1.0158	0.60174	4.8120

CAL. FUEL AIR RATIO = 0.082874 MEAS. FUEL AIR RATIO = 0.082130 DIFF MEAS. & CAL. F/A PERCENT = 0.90601

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	396.22	420.81	396.89	403.44

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	602.25	-245.56	-334.63	1023.9	1382.5	1376.9

ENGINE OIL	FILT	STILT	OILP	MANIFOLD PRESSURE = 29.196
	179.94	176.18	73.643	

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.378
	298.50	2643.7	

INDUCTION AIR	TAIPT1	TAIPT2	TAIRT1	TAIRT2
	49.937	49.366	-39.978	46.262

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	90.742	4.3006	54.999	2863.5

CELL TEMP. = 78.704 HEATER TEMP = 89.417 COOLER TEMP = 39.907

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NASA-LEWIS		PRELIMINARY DATA		04/23/76		CADDEII		REC 04/23/76 10:23:55.254		FAC SEX15		PGM C003		RDG 3641	
LEANOUT RE-RUNS		TO CL APP		50 DEG.,		HUM=60%		MODE = 4.000		NO. SCANS = 5					
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.230		RATED HP. = 160.00		HC RATIO= 2.1250							
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		50.890		29.229		165.24		769.49		3.4639		14.652			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		71.465		5.4062		44.873		63.806		62.211		6.0915			
COOLING AIR		TEMP		DEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		54.055		2.9464		3.8530		9858.1		57.195		36.300			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		57.195		50.183		31.511		0.72359		120.55					
ENG. CO-2		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		RHP	
		0.080847		0.080485		1.2067		2433.7		2436.6		260.42		120.67	
WET CORRECTION FACTOR = 0.85843		EXHAUST MOLE WT. = 27.613		EXHAUST DENSITY = 0.071497		EXHAUST FLOW RATE = 11681.									
MEASURED CONC.		PART PER MILLION WET		PER CENT											
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		1370.2		428.78		6.3692		10.758		0.050035					
CORRECTED CONC. TO WET BASIS				5.4575		9.2353		0.042995							
EMISSION RATE		HC		NOX		CO									
		0.57461		0.59603		46.367									
EMISSION MASS/MODE		0.047884		0.049669		3.8639									
EMISSION MASS/RATED HP		0.00029928		0.00031043		0.024150									
MODE EMIS./STD. CYCLE %		15.751		20.696		57.499									
CAL. FUEL AIR RATIO = 0.081355		MEAS. FUEL AIR RATIO = 0.080847		DIFF MEAS. & CAL. F/A PERCENT = 0.62799											
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		356.46		378.46		380.51		399.97							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		747.24		-454.00		68.143		1597.7		1317.1		1314.7			
ENGINE OIL		EOILT		SOILT		OILP		MANIFOLD PRESSURE = 26.273							
		195.12		134.06		72.135									
DYNO COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.375									
		269.29		2359.3											
INDUCTION AIR		TAIRT1		TAIRT2		TAIPT1		TAIRT2							
		50.507		50.890		37.015		46.268							
ORIFICE AIR		TEMP		DELTA P		ORIF		FLOW							
		91.430		4.4282		54.447		2873.6							
CELL TEMP. = 81.095		HEATER TEMP = 80.410		COOLER TEMP = 38.664											

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CELL TEMP. = 70.163      HEATER TEMP = 89.452      COOLER TEMP = 37.719



NASA-LEWIS		PRELIMINARY DATA		04/23/76		CADDEII		REC 04/23/76 10:32:44.587		FAC SEX15		PGM C003		RDG 3643	
LEANOUT RE-RUNS TO CL APP 50 DEG. HUM=60%								MODE = 3.0000		NO. SCANS = 5					
ENGINE TIMING = 25.000				DEG.		BAROMETRIC PRESSURE = 29.230				RATED HP. = 160.00		HC RATIO = 2.1250			
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		47.684		29.224		203.55		961.16		4.3704		14.825			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON		FPIP			
		69.172		5.3756		44.934		80.051		77.012		6.0591			
COOLING AIR		TEMP		DEL-HOOD		DEL-HOOD		FLOW		REL-HUM		DEW-POINT			
		51.955		2.9381		3.7418		9842.5		65.880		36.850			
REL-HUM		1		2		HUMIDITY		H2O VAPOR CORRECTED HP							
		65.880		-19.124		31.829		0.73091		154.23					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		BHP	
		0.080123		0.079761		1.1959		2697.2		2700.4		293.56		150.76	
WET CORRECTION FACTOR = 3.85591				EXHAUST MOLE. WT. = 27.671				EXHAUST DENSITY = 0.071646				EXHAUST FLOW RATE = 14551.			
MEASURED CONC.		PART PER MILLION WET				PER CENT									
		HC PPM		NOX PPM		CO DRY		CO2 DRY		O2 DRY					
		1171.7		233.76		6.2647		10.870		0.014961					
CORRECTED CONC. TO WET BASIS						5.3620		9.3034		0.012906					
EMISSION RATE		HC		NOX		CO									
		0.61210		0.40479		56.646									
EMISSION MASS/MODE		0.0030605		0.0020739		0.28323									
EMISSION MASS/RATED HP		1.9128E-05		1.2650E-05		0.0017702									
MODE EMIS./STD. CYCLE %		1.0067		0.84330		4.2147									
CAL. FUEL AIR RATIO = 0.081068				MEAS. FUEL AIR RATIO = 0.080123				DIFF MEAS. & CAL. F/A PERCENT = 1.1786							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		396.34		422.53		405.55		405.29							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		1533.5		25.655		-148.48		1600.2		1398.0		1392.7			
ENGINE OIL		OILT		SOILT		OILP		MANIFOLD PRESSURE = 28.047							
		185.34		252.14		72.975									
DYNQ COND.		TORQUE		RPM		CYL. BACK PRESSURE = 29.407									
		297.95		2640.3											
INDUCTION AIR		TAIPT1		TAIPT2		TAIRT1		TAIPT2							
		47.264		47.684		53.897		45.129							
ORIFICE AIR		TEMP		DELTAP		ORFP		FLOW							
		89.774		4.385C		54.314		2864.3							
CYLL TEMP. = 79.321				HEATER TEMP = 89.376				COOLER TEMP = 37.846							

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NASA-LEWIS PRELIMINARY DATA 04/23/76 CADDEIT REC 04/23/76 10:36:10.311 FAC SEX15 PGM C003 RDG 3644

LEANOUT PF-RUNS TO CL APP 50 DEG. HUM=60% MODE = 4.0C00 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. PARAMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	49.110	29.215	166.87	777.58	3.5714	14.651

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	70.716	5.4119	44.893	63.920	61.446	6.1248

COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	52.556	3.0006	3.8433	9959.4	62.340	36.905

REL-HUM	1	2	HUMIDITY	H2O VAPOR	CORRECTED HP
	62.340	52.661	32.151	0.73830	119.89

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.079022	0.078661	1.1794	2432.8	2435.6	259.58	120.24

WET CORRECTION FACTOR = 0.85975 EXHAUST MOLE. WT. = 27.759 EXHAUST DENSITY = 0.071875 EXHAUST FLOW RATE = 11723.

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	1246.3	768.30	5.4892	11.334	0.085148
CORRECTED CONC. TO WET BASIS			4.7193	9.7441	0.073206

	HC	NOX	CO
EMISSION RATE	0.52453	1.0718	40.166
EMISSION MASS/MODE	0.043711	0.089318	3.3471
EMISSION MASS/RATED HP	0.00027319	0.00055823	0.020923
MODE FMIS./STD. CYCLE %	14.378	37.216	49.809

CAL. FUEL AIR RATIO = 0.078987 MEAS. FUEL AIR RATIO = 0.079022 DIFF MEAS. & CAL. F/A PERCENT = -0.044879

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	354.38	383.63	395.75	399.15

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	999.72	454.00	175.18	1689.0	1349.2	1346.9

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 26.539
	185.08	193.12	72.011	

DYAO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.333
	252.10	2368.1	

INDUCTION AIR	TAIPT1	TAIPT2	TAIRT1	TAIPT2
	48.727	49.110	109.15	45.835

ORIFICE AIR	TEMP	DELTA P	REF	FLOW
	51.047	4.4310	53.783	2875.5

CELL TEMP. = 80.602 HEATED TEMP = 89.778 COOLER TEMP = 38.654

NASA-LEWIS PRELIMINARY DATA 04/23/76 CADDEII REC 04/23/76 10:40:05.545 FAC SEX15 PGM C003 RDG 3645

LEANOUT RE-RUNS TO CL APP 50 DEG. HUM=60% MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR TEMP 50.671 PRESS 29.222 CFM 103.16 DRY FLOW 474.28 VAPOR FLOW 2.1785 PRESS TOTAL 14.475

COMB. FUEL TEMP 73.360 PRESS 5.4971 DENSITY 44.822 TURBO FLOW 39.869 FLOW TRON 40.360 FPIP 6.1482

COOLING AIR TEMP 52.566 UDEL-HOOD 2.8351 DEL-HOOD 3.7083 FLOW 9647.1 REL-HUM 58.117 DEW-POINT 36.500

RFL-HUM 1 58.117 2 46.117 HUMIDITY 32.153 % H2O VAPOR CORRECTED HP 65.497

ENG. COND. F/A DRY 0.085098 F/A WET 0.084708 EQU. RATIO 1.2701 RPM-1 2352.8 RPM-2 2355.3 TORQUE 145.42 BHP 65.594

WET CORRECTION FACTOR = 0.85420 EXHAUST MOLE WT. = 27.282 EXHAUST DENSITY = 0.070640 EXHAUST FLOW RATE = 7316.2

MEASURED CONC. PART PER MILLION WET HC PPM 1764.5 NOX PPM 177.08 CO DRY 7.4564 CO2 DRY 10.250 O2 DRY 0.076388  
CORRECTED CONC. TO WET BASIS CO DRY 6.4438 CO2 DRY 8.8578 O2 DRY 0.066014

EMISSION RATE HC 0.46344 NOX 0.15417 CO 34.227  
EMISSION MASS/MODE 0.046344 NOX 0.015417 CO 3.4227  
EMISSION MASS/RATED HP 0.00028965 NOX 9.5355E-05 CO 0.021332  
MODE EMIS./STD. CYCLE % 15.245 NOX 6.4237 CO 50.932

CAL. FUEL AIR RATIO = 0.084031 MEAS. FUEL AIR RATIO = 0.085038 DIFF MEAS. & CAL. F/A PERCENT = -1.2530

CYL TEMP DEG.F CYL-1 313.63 CYL-2 327.51 CYL-3 326.20 CYL-4 325.36

EXT GAS TEMP DEG.F EXT-1 1296.5 EXT-2 454.00 EXT-3 234.25 EXT-4 1599.9 SEXT-1 1178.6 SEXT-2 1182.0

ENGINE OIL EOILT 183.61 SOILT 243.81 OILP 72.039 MANIFOLD PRESSURE = 18.454

DYNO COND. TORQUE 140.70 RPM 2298.0 CYL. BACK PRESSURE = 29.316

INDUCTION AIR IAIRT1 50.179 IAIRT2 50.671 TAIRT1 139.61 TAIRT2 46.524

ORIFICE AIR TEMP 92.387 DELTAP 4.3569 ORFP 53.962 FLOW 2848.6

CELL TEMP. = 80.813 HEATER TEMP = 90.330 COOLER TEMP = 38.246

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NASA-LEWIS PRELIMINARY DATA 04/23/76 CADDEII REC 04/23/76 10:50:54.398 FAC SEX15 PGM C003 RDG 3647

LEANOUT RE-RUNS TO CL APP 50 DEG. HUM=60% MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	48.498	29.244	155.06	773.19	3.5526	14.649

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIF
	70.529	5.4203	44.897	61.217	60.996	6.0774

COOLING AIR	TEMP	DBFL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	51.919	2.9098	3.8447	9789.3	63.797	36.810

REL-HUM	1	2	HUMIDITY	H2O VAPOR	CORRECTED HP
	63.797	35.380	32.163	0.73857	119.56

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.078889	0.078528	1.1774	2433.3	2436.7	259.00	120.00

WET CORRECTION FACTOR = 0.86246 EXHAUST MOLE. WT. = 27.770 EXHAUST DENSITY = 0.071903 EXHAUST FLOW RATE = 11650.

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	1152.6	741.21	5.1302	11.554	0.068467	
CORRECTED CONC. TO WET BASIS			4.4246	9.9645	0.059050	

	HC	NOX	CO
EMISSION RATE	0.48210	1.0277	37.426
EMISSION MASS/MODE	0.040175	0.085639	3.1188
EMISSION MASS/RATED HP	0.00025110	0.00053524	0.019492
MODE EMISS./STD. CYCLE %	13.216	35.683	46.411

CAL. FUEL AIR RATIO = 0.078150 MEAS. FUEL AIR RATIO = 0.078889 DIFF MEAS. & CAL. F/A PERCENT = -0.93620

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	363.82	388.37	391.23	401.47

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1024.2	-454.00	416.31	1751.6	1342.8	1339.1

ENGINE OIL	OILT	SOILT	OILP	MANIFOLD PRESSURE
	184.58	325.62	72.319	26.392

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	268.47	2355.8	29.371

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	48.087	48.498	150.98	46.170

ORIFICE AIR	TEMP	DELTAP	ORIF	FLOW
	91.656	4.6093	53.820	2928.6

CELL TEMP. = 79.755 HEATER TEMP = 91.559 COOLER TEMP = 38.954

NASA-LFWIS		PRELIMINARY DATA		04/23/76	CADDEII	REC 04/23/76 10:54:47.653		FAC SEX15	PGM C003	RDG 3648
LEAFOUT RE-RUNS TO CL APP 50 DEG. HUM=60%				MODE = 5.0000		NO. SCANS = 5				
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.230		RATED HP. = 160.00		HC RATIO = 2.1250		
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL				
	50.078	29.224	102.63	471.46	2.1596	14.472				
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP				
	73.414	5.5151	44.821	38.835	37.387	6.0492				
COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT				
	51.837	3.0723	4.0500	10091.	59.236	36.425				
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP					
	59.236	49.295	32.065	0.73633	66.121					
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP			
	0.079301	0.078939	1.1836	2353.9	2356.6	147.86	66.270			
WET CORRECTION F		TOR = 0.86140		EXHAUST MOL. WT. = 27.737		EXHAUST DENSITY = 0.071817		EXHAUST FLOW RATE = 7115.4		
MEASURED CONC.	PART PER MILLION WET		PER CFMT							
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY					
	1441.7	385.52	5.3769	11.412	0.10195					
CORRECTED CONC. TO WET BASIS				CO DRY	O2 DRY					
				4.6316	9.8301		0.087820			
EMISSION RATE		HC	NOX	CO						
		0.36828	0.32643	23.926						
EMISSION MASS/MODE		0.036828	0.332643	2.3926						
EMISSION MASS/RATED HP		0.00023018	0.00020402	0.014054						
MODE EMIS./STD. CYCLE		12.114	13.601	35.604						
CAL. FUEL AIR RATIO = 0.078758		MEAS. FUEL AIR RATIO = 0.079301		DIFF MEAS. & CAL. F/A PERCENT = -0.68481						
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4						
	322.91	328.64	324.30	331.07						
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2				
	1162.6	-454.00	455.63	1675.8	1199.1	1201.0				
ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.383						
	184.19	273.52	71.711							
DYND COND.	TORQUE	RPM	CYL. RACK PRESSURE = 29.311							
	147.05	2290.2								
INDUCTION AIR	TAIPT1	TAIRT2	TAIRT1	TAIRT2						
	49.576	50.078	172.53	46.923						
ORIFICE AIR	TEMP	DELTA P	ORFD	FLOW						
	92.396	4.5956	53.519	2922.5						
CELL TEMP. = 90.173		HEATER TEMP = 91.694		COOLER TEMP = 38.573						

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NASA-LEWIS PPFLIMINARY DATA 04/23/76 CADDEII REC 04/23/76 10:58:03.416 FAC SEX15 PGM C003 RDG 3649

LEANOUT PF-RUNS TO CL APP 50 DEG. HUM=60% MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. PARAMETRIC PRESSURE = 29.230 RATED HP.= 160.00 HC RATIO= 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	49.202	29.230	205.10	967.49	4.4250	14.824

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	71.848	5.3978	44.862	72.813	72.313	6.0339

COOLING AIR	TEMP	DELT-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	52.838	3.0723	3.9764	10091.	62.596	36.995

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	62.596	-14.965	32.016	0.73519	154.44

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.074743	0.074403	1.1156	2700.9	2704.6	293.14	150.75

WET CORRECTION FACTOR = 0.95414 EXHAUST MOLE. WT. = 28.111 EXHAUST DENSITY = 0.072786 EXHAUST FLOW RATE = 14346.

MEASURED CONC.	PART PER MILLION WET			PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	940.99	735.27	4.1933	12.058	0.062146
CORRECTED CONC. TO WET BASIS			3.5817	10.299	0.053081

	HC	NOX	CO
EMISSION RATE	0.48465	1.2553	37.305
EMISSION MASS/MODE	0.0024232	0.0062764	0.18653
EMISSION MASS/RATED HP	1.5145E-05	3.2228E-05	0.0011658
MODE EMIS./STD. CYCLE %	0.79712	2.6152	2.7757

CAL.FUEL AIR RATIO = 0.075972 MEAS. FUEL AIR RATIO = 0.074743 DIFF MEAS.& CAL. F/A PERCENT = 1.6438

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	387.36	411.06	384.22	395.27

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1540.5	252.36	426.39	1683.0	1411.2	1402.1

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 28.104
	192.82	171.37	73.427	

DYNO COND.	TORQUE	RPM	CYL.BACK PRESSURE = 29.391
	298.69	2631.3	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	48.736	49.202	167.15	45.593

ORIFIC AIR	TEMP	DELTAP	ORFD	FLOW
	93.456	4.6020	54.512	2921.7

CELL TEMP. = 80.540 HEATER TEMP = 91.912 COOLER TEMP = 38.309

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NASA-LEWIS PRELIMINARY DATA 04/23/76 CADDEY REC 04/23/76 11:01:35.707 FAC SEX15 PGM C003 RDG 3650

LEANOUT RE-RUNS TO CL APP 50 DEG. HUM=60% MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP.= 160.00 HC RATIO= 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	50.151	29.226	168.51	786.02	3.5412	14.666

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	73.031	5.4239	44.831	62.983	58.662	6.0597

COOLING AIR	TEMP	DEL-HUMD	DEL-HOCD	FLOW	REL-HUM	DEW-POINT
	53.311	3.0250	3.9331	10004.	58.889	36.345

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	58.889	47.793	31.537	0.72419	119.75

ENG. COND.	F/A DRY	F/A WET	F/O2 RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.074631	0.074297	1.1139	2435.9	2438.9	258.70	119.99

WET CORRECTION F/A DRY = 0.85874 EXHAUST MOLF. WT. = 28.120 EXHAUST DENSITY = 0.072810 EXHAUST FLOW RATE = 11649.

MEASURED CONC.	PART PER MILLION WPT			PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	955.69	1260.5	3.9343	12.173	0.18864
CORRECTED CONC. TO WET BASIS			3.3785	10.453	0.16199

	HC	NOX	CO
EMISSION RATE	0.39970	1.7476	28.575
EMISSION MASS/MODE	0.033308	0.14564	2.3812
EMISSION MASS/RATED HP	0.00020818	0.00091023	0.014883
MODE EMISS./STD. CYCLE %	10.957	60.682	35.435

CAL.FUEL AIR RATIO = 0.074995 MEAS. FUEL AIR RATIO = 0.074631 DIFF MEAS.& CAL. F/A PERCENT = 0.48702

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	372.90	335.92	393.53	397.72

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	885.63	-454.00	710.65	1826.0	1374.8	1370.4

ENGINE OIL	FILT	SOILT	OIL	MANIFOLD PRESSURE = 26.623
	184.01	253.14	72.371	

DYMO COND.	TORQUE	RPM	CYL BACK PRESSURE = 29.380
	257.74	2354.6	

INDUCTION AIR	TAIRT1	TAIPT2	TAIRT1	TAIPT2
	49.704	50.151	148.37	45.889

ORIFICE AIR	TEMP	DELTA P	QPEP	FLOW
	93.833	4.7847	54.143	2973.5

CELL TEMP. = 81.527 HEATER TEMP = 91.953 COOLER TEMP = 38.782

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NASA-LEWIS PRELIMINARY DATA 04/23/76 CADDEII REC 04/23/76 11:07:50.421 FAC SEX15 PGM C003 RDG 3651

LEANOUT PE-RUNS TO CL APP 50 DEG. HUM=60% MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.230 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	49.813	29.220	132.67	471.80	2.0929	14.472

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FIP
	73.787	5.5034	44.811	42.994	39.079	6.0837

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT
	51.637	2.9704	3.9303	9903.2	57.944	35.619

RFL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	57.944	46.633	31.351	0.71304	65.030

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.082829	0.082463	1.2362	2350.1	2353.1	145.76	65.222

WET CORRECTION FACTOR = 0.86165 EXHAUST MOLE WT. = 27.457 EXHAUST DENSITY = 0.071093 EXHAUST FLOW RATE = 7215.5

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM	CO2 DRY
	1673.2	10.575
CORRECTED CONC. TO WET BASIS	NOX PPM	O2 DRY
	228.68	0.13297
	6.8916	0.11458
	5.9382	

EMISSION RATE	HC	NOX	CO
	0.43341	0.19636	31.107
EMISSION MASS/MODE	0.043341	0.019636	3.1107
EMISSION MASS/RATED HP	0.00027088	0.00012272	0.019442
MODE EMIS./STD. CYCLE	14.257	8.1816	46.290

CAL. FUEL AIR RATIO = 0.082355 MEAS. FUEL AIR RATIO = 0.082829 DIFF MEAS. & CAL. F/A PERCENT = -0.57224

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	312.56	320.97	319.95	316.79

EXT GAS TEMP DEG. F	FXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1309.1	-454.00	492.11	1685.9	1160.5	1163.0

ENGINE OIL	FIILT	SOILT	OILT	MANIFOLD PRESSURE = 18.348
	181.04	128.12	71.999	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.307
	143.49	2326.4	

INDUCTION AIR	TAIRT1	TAIPT2	TAIRT1	TAIPT2
	47.275	49.812	176.68	46.801

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	92.344	4.7369	55.274	2964.0

CELI TEMP. = 80.443 HEATER TEMP = 92.098 COOLER TEMP = 38.573

NASA-LEWIS PRELIMINARY DATA 04/23/76 CADDEII REC 04/23/76 11:11:56.341 FAC SEX15 PGM C003 RDG 3652

LEANOUT RE-RUNS TO CL APP 50 DEG. HUM=60% MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.250 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	48.297	29.276	203.84	961.41	4.3110	14.828

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	71.420	5.3885	44.974	74.706	73.264	6.0447

COOLING AIR	TEMP	INDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	51.992	3.0584	3.8373	10066.	63.510	36.505

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	63.510	17.620	31.388	0.72078	153.63

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.076205	0.075865	1.1374	2698.0	2701.9	292.80	150.41

WET CORRECTION FACTOR = 0.85802 EXHAUST MOLE. WT. = 27.989 EXHAUST DENSITY = 0.072471 EXHAUST FLOW RATE = 14336.

MEASURED CONC.	PART PER MILLION WET		PER CENT	
	HC PPM	NOX PPM	CO DRY	O2 DRY
	999.60	740.57	4.4535	11.932
CORRECTED CONC. TO WET BASIS			3.8298	10.238

	HC	NOX	CO
EMISSION RATE	0.51448	1.2635	39.862
EMISSION MASS/MODE	0.0025724	0.0063173	0.19931
EMISSION MASS/RATED HP	1.6077E-05	3.9483E-05	0.0012457
MODE EMIS./STD. CYCLE %	0.84618	2.6322	2.9659

CAL.FUEL AIR RATIO = 0.076528 MEAS. FUEL AIR RATIO = 0.076205 DIFF MEAS. & CAL. F/A PERCENT = 0.42346

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	387.50	415.49	392.41	395.09

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	910.75	176.94	544.18	1708.3	1397.9	1388.3

ENGINE OIL	EGILT	SGILT	OILP	MANIFOLD PRESSURE
	179.17	186.24	73.303	28.020

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	282.70	2601.9	29.443

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	47.794	48.297	190.69	45.893

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	92.553	4.7593	54.885	2960.8

CELL TEMP. = 80.214 HEATER TEMP = 92.105 COOLER TEMP = 38.755

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NASA-LEWIS	PRELIMINARY DATA	04/23/76	CADDFII	REC 04/23/76 11:15:33.629	FAC SEX15	PGM C003	RDG 3653
LEANOUT RE-RUNS TO CL APP	50 DEG.	HUM=607	MODE = 4.0000	NO. SCANS = 5			
ENGINE TIMING = 25.000	DEG.	BAROMETRIC PRESSURE = 29.250	RATED HP.= 160.00	HC RATIO= 2.1250			
COMB. AIR	TEMP 49.092	PRESS 29.191	CFM 166.23	DPY FLOW 774.74	VAPOR FLOW 3.5433	PRESS TOTAL 14.658	
COMP. FUEL	TEMP 72.462	PRESS 5.4266	DENSITY 44.846	TURBO FLOW 60.259	FLOW TRON 57.672	FPIP 6.0462	
COOLING AIR	TEMP 52.311	DEL-HOOD 2.9790	DEL-HOOD 3.9773	FLOW 9919.2	REL-HUM 62.150	DEW-POINT 36.710	
REL-HUM	1 62.150	2 48.943	HUMIDITY 32.315	% H2O VAPOR 0.73516	CORRECTED HP 119.81		
ENG. COND.	F/A DRY 0.074440	F/A WET 0.074101	EQU. RATIO 1.1110	RPM-1 2428.4	RPM-2 2432.6	TORQUE 259.88	RHP 120.17
WET CORRECTION C	TOP = 0.95435	EXHAUST MOLEF. WT. = 28.136	EXHAUST DENSITY = 0.072852	EXHAUST FLOW RATE = 11474.			
MEASURED CONC.	PART PER MILLION WET HC PPM 1059.6	NOX PPM 1181.3	CO DRY 4.2510	PER CENT CO2 DRY 11.966	O2 DRY 0.17896		808
CORRECTED CONC. TO WET BASIS			3.6326	10.224	0.15289		
EMISSION RATE	HC 0.43650	NOX 1.6131	CO 30.262				
EMISSION MASS/MODE	0.036375	0.13442	2.5218				
EMISSION MASS/RATED HP	0.00022734	0.00084015	0.015761				
MODE EMIS./STD. CYCLE %	11.965	56.010	37.527				
CAL.FUFL AIR RATIO = 0.075803	MEAS. FUEL AIR RATIO = 0.074440	DIFF MEAS.& CAL. F/A PERCENT = 1.8316					
CYL TEMP DEG.F	CYL-1 371.97	CYL-2 378.78	CYL-3 394.39	CYL-4 394.38			
EXT GAS TEMP DEG.F	EXT-1 1444.9	EXT-2 -454.00	EXT-3 751.30	EXT-4 1910.0	SEXT-1 1357.5	SEXT-2 1352.5	
ENGINE OIL	EXILT 183.56	SOILT 311.83	OTLP 72.015	MANIFOLD PRESSURE = 26.407			
DYNO COND.	TORQUE 275.69	RPM 2375.0	CYL. BACK PRESSURE = 29.309				
INDUCTION AIR	IAIRT1 48.663	IAIPT2 49.092	TAIRT1 160.90	TAIPT2 46.002			
ORIFICE AIR	TEMP 92.448	DELTA P 4.8427	ORFP 52.955	FLOW 2993.2			
CELL TEMP. = 81.113	HEATER TEMP = 91.850	COOLER TEMP = 38.509					

NASA-LEWIS PRELIMINARY DATA 04/23/76 CADDEII REC 04/23/76 11:23:28.971 FAC SEX15 PGM C003 RDG 3654

LEANOUT RE-RUNS TO CL APP 50 DEG. HUM=60% MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.250 RATED HP.= 160.00 HC RATIO= 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	51.628	29.243	103.85	477.56	2.0707	14.486

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	75.137	5.4860	44.774	45.153	42.814	6.0654

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	53.193	2.9062	3.8004	9782.5	53.013	35.074

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	53.013	51.283	30.351	0.69697	66.429

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.089651	0.089254	1.3381	2351.9	2354.7	148.46	66.483

WET CORRECTION FACTOR = 0.87138 EXHAUST MOLE WT. = 26.942 EXHAUST DENSITY = 0.069760 EXHAUST FLOW RATE = 7489.2

MEASURED CONC.	PART PER MILLION WET		PER CENT	O2 DRY
	HC PPM	NOX PPM		
	1980.0	75.507	8.5548	0.095629
CORRECTED CONC. TO WET BASIS			7.4532	0.083329

	HC	NOX	CO
EMISSION RATE	0.53235	0.067293	40.579
EMISSION MASS/MODE	0.053235	0.0067293	4.0579
EMISSION MASS/RATED HP	0.00033272	4.2058E-05	0.025362
MODE EMIS./STD. CYCLE %	17.511	2.8039	60.385

CAL.FUEL AIR RATIO = 0.085815 MEAS. FUEL AIR RATIO = 0.089651 DIFF MEAS.& CAL. F/A PERCENT = -3.1640

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	307.84	318.23	310.25	313.38

FXT GAS TEMP DEG.F	FXT-1	FXT-2	FXT-3	FXT-4	SFXT-1	SEXT-2
	1440.8	-454.00	516.35	1665.4	1125.4	1127.0

ENGINE OIL	FOILT	SOILT	OIL2	MANIFOLD PRESSURE = 18.436
	178.19	245.31	71.867	

DYNO COND.	TORQUE	RPM	CYL BACK PRESSURE = 29.366
	147.51	2297.3	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	51.127	51.628	169.58	46.995

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	93.925	4.7694	54.104	2969.0

CELL TEMP. = 81.835 WATER TEMP = 91.925 COOLER TEMP = 38.764

NASA-LFWTS PRELIMINARY DATA 04/23/76 CADDEIT REC 04/23/76 11:27:52.592 FAC SFX15 PGM C003 RRG 3655

LEANDUT 2F RUNS TO CL APP 50 DEG HUM = 60 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.250 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	50.625	29.258	200.80	946.54	4.1160	14.817

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	73.858	5.4095	44.809	69.160	68.209	6.0441

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	PFL-HUM	DEL-POINT
	54.883	3.0573	3.8862	10064.	56.434	35.714

PFL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	56.434	6.1266	30.439	0.69899	150.03

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	RHP
	0.072061	0.071749	1.0755	2700.6	2704.6	284.72	144.41

WET CORRECTION FACTOR = 0.85120 EXHAUST MOLE. WT. = 28.338 EXHAUST DENSITY = 0.073374 EXHAUST FLOW RATE = 13885.

MEASURED CONC.	PART PER MILLION WET			PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	854.08	932.69	3.3421	12.518	0.063625
CORRECTED CONC. TO WET BASIS			2.8448	10.655	0.054159

EMISSION RATE	HC	NOX	CO
	3.42576	1.5412	28.679
	0.0021288	0.007050	0.14339
	1.3305E-05	4.8162E-05	0.00089622
MODE EMISS./STD. CYCLE %	0.70027	3.2108	2.1339

CAL. FUEL AIR RATIO = 0.074072 MEAS. FUEL AIR RATIO = 0.072061 DIFF MEAS. & CAL. F/A PERCENT = 2.7909

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	408.70	426.76	405.03	421.73

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	785.79	296.41	750.42	1986.9	1440.3	1430.9

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 27.838
	182.04	168.08	73.247	

DYMO COND.	TORQUE	RPM	CYL. PACK PRESSURE = 29.408
	276.80	2633.5	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	50.197	50.625	160.72	45.875

PIPEICE AIR	TEMP	DELTA P	DP60	FLOW
	94.194	4.8144	54.110	2980.8

CELL TEMP. = 83.442 HEATER TEMP = 61.884 COOLER TEMP = 38.627

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NASA-LEWIS PRELIMINARY DATA 04/23/76 CADDEII REC 04/23/76 11:31:02.465 FAC SEX15 PGM C003 RDG 3656

LEANOUT RE RUNS TO CL APP 50 DEG HUM = 60 \* MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.250 RATED HP. = 150.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	48.206	29.258	172.68	807.33	3.5208	14.698

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW FROM	FPIP
	71.688	5.4215	44.867	61.639	59.166	6.1092

COOLING AIR	TEMP	WDEL-HUMID	DEL-HUMID	FLOW	REL-HUM	DEW-POINT
	51.546	2.9945	3.9001	9948.1	61.448	35.584

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	61.448	47.053	30.527	0.70101	118.56

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.073286	0.072968	1.0938	2429.4	2433.5	257.46	119.09

WET CORRECTION F TOR = 0.85667 EXHAUST MOLE. WT. = 28.234 EXHAUST DENSITY = 0.073104 EXHAUST FLOW RATE = 11901.

MEASURED CONC.	PART PER MILLION WET	HC PPM	NOX PPM	CO DRY	PER CENT
		783.90	1243.6	3.9690	02 DRY
CORRECTED CONC. TO WET BASIS				3.4002	0.36208
				10.236	0.31018

EMISSION RATE	HC	NOX	CO
	0.33492	1.7613	29.378
EMISSION MASS/MODE	0.027910	0.14677	2.4482
EMISSION MASS/RATED HP	0.00017444	0.00091732	0.015301
MODE EMIS./STD. CYCLE %	9.1809	61.155	36.431

CAL. FUEL AIR RATIO = 0.074510 MEAS. FUEL AIR RATIO = 0.073286 DIFF MEAS. & CAL. F/A PERCENT = 1.6710

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	375.95	382.34	395.27	379.48

FXT GAS TEMP DEG.F	FXT-1	FXT-2	FXT-3	FXT-4	SFXT-1	SFXT-2
	1375.6	-454.00	732.58	1885.1	1405.6	1400.8

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 27.000
	184.37	108.14	71.963	

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.363
	261.38	2359.9	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	47.721	48.206	153.47	45.955

ORIFICE AIR	TEMP	DELTA P	PRF3	FLOW
	91.613	4.7623	54.347	2973.2

CELL TEMP. = 80.001 HEATER TEMP = 91.905 COOLER TEMP = 38.482

NASA-LEWIS	PRELIMINARY DATA	04/23/76	CADDEII	REC 04/23/76 11:34:18.537	FAC SEX15	PGM C003	RDG 3657
LEANOUT RE RUNS TO CL APP 50 DEG HUM = 60 %				MODE = 5.0003	NO. SCANS = 5		
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.250		RATED HP. = 160.00		HC RATIO = 2.1250
COMP. AIR	TEMP 49.558	PRESS 29.243	CFM 102.78	DRY FLOW 472.81	VAPOR FLOW 2.0714	PRESS TOTAL 14.481	
COMP. FUEL	TEMP 73.751	PRESS 5.5055	DENSITY 44.912	TURBO FLOW 43.071	FLOW TRON 40.663	FPIP 5.0530	
COOLING AIR	TEMP 51.500	INLET-HOOD 2.9342	DEL-HOOD 3.8893	FLOW 9835.2	REL-HUM 57.818	DEW-POINT 35.324	
REL-HUM	1 57.818	2 30.845	HUMIDITY 30.668	% H2O VAPOR 0.70424	CORRECTED HP 65.392		
ENG. COND.	F/A DRY 0.086004	F/A WET 0.085628	EQU. RATIO 1.2936	RPM-1 2351.6	RPM-2 2354.6	TORQUE 146.54	BHP 65.514
WET CORRECTION FACTOR = 0.87167		EXHAUST MOLE. WT. = 27.213		EXHAUST DENSITY = 0.070462		EXHAUST FLOW RATE = 7316.6	
MEASURED CONC.	PART PER MILLION WET			PER CENT			
	HC PPM 1566.1	NOX PPM 222.64	CO DRY 7.0305	CO2 DRY 10.507	O2 DRY 0.055955		
CORRECTED CONC. TO WET BASIS			6.1282	9.1587	0.048783		
EMISSION RATE	HC 0.43762	NOX 0.19385	CO 32.552				
EMISSION MASS/MODE	0.043762	0.019385	3.2552				
EMISSION MASS/RATED HP	0.00027351	0.00012116	0.020345				
MODE EMIS./STD. CYCLE %	14.395	8.3770	48.440				
CAL. FUEL AIR RATIO = 0.082960		MEAS. FUEL AIR RATIO = 0.086004		DIFF MEAS. & CAL. F/A PERCENT = -3.5395			
CYL TEMP DEG.F	CYL-1 319.77	CYL-2 326.65	CYL-3 325.03	CYL-4 329.24			
EXT GAS TEMP DEG.F	EXT-1 1729.4	EXT-2 -454.00	EXT-3 648.97	EXT-4 1740.2	SEXT-1 1204.3	SEXT-2 1209.6	
ENGINE OIL	EOILT 184.26	SOILT 188.47	OILP 71.775	MANIFOLD PRESSURE = 18.432			
DYNO COND.	TORQUE 150.69	RPM 2283.6	CYL. BACK PRESSURE = 29.355				
INDUCTION AIR	TAIPT1 49.001	TAIPT2 49.558	TAIRT1 103.67	TAIRT2 46.629			
ORIFICE AIR	TEMP 92.065	DELTA P 4.8132	ORF3 54.111	FLOW 2986.2			
CELL TEMP. = 80.547		HEATER TEMP = 91.843		COOLER TEMP = 38.164			

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NASA-LEWIS PRELIMINARY DATA 04/23/76 CADDEII REC 04/23/76 11:39:10.544 FAC SEX15 PGM C003 RDG 3658  
 LEANOUT RE RUNS TO CL APP 50 DEG HUM = 60 % MODE = 3.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. RAPIDMETRIC PRESSURE = 29.250 RATED HP. = 160.00 HC RATIO = 2.1250  

COMB. AIR	TEMP 48.955	PRESS 29.270	CFM 108.06	DRY FLOW 933.43	VAPOR FLOW 4.0927	PRESS TOTAL 14.809
COMP. FUEL	TEMP 72.569	PRESS 5.4155	DENSITY 44.343	TURBO FLOW 72.097	FLOW FROM 69.193	FPIP 5.0753
COOLING AIR	TEMP 53.148	INLET-HOOD 2.9920	DEL-HOOD 3.9438	FLOW 9943.5	REL-HUM 60.523	DEW-POINT 35.910
REL-HUM	1 60.523	2 5.6546	HUMIDITY 30.692	% H2O VAPOR 0.70490	CORRECTED HP 148.31	
ENG. COND.	F/A DRY 0.074128	F/A WET 0.073804	EGU. RATIO 1.1064	RPM-1 2696.0	RPM-2 2699.5	TORQUE 282.50 RHP 145.07

 WET CORRECTION FACTOR = 0.85465 EXHAUST MOLE WT. = 28.153 EXHAUST DENSITY = 0.072920 EXHAUST FLOW RATE = 13805.  

MEASURED CONC.	PART PER MILLION WET HC PPM 853.19	NOX PPM 1077.4	CO DRY 3.0310	CO2 DRY 12.598	O2 DRY 0.078728
CORRECTED CONC. TO WET BASIS			2.6208	10.393	0.068072

EMISSION RATE	HC 0.42286	NOX 1.7701	CO 26.268
EMISSION MASS/MODE	0.0021143	0.0088503	0.13134
EMISSION MASS/RATED HP	1.3214E-05	5.5314E-05	0.00082088
MODE EMIS./STD. CYCLE %	0.69549	3.5876	1.9545

 CAL. FUEL AIR RATIO = 0.073391 MEAS. FUEL AIR RATIO = 0.074128 DIFF MEAS. & CAL. F/A PERCENT = -0.99376  

CYL TEMP DEG. F	CYL-1 407.71	CYL-2 424.49	CYL-3 398.67	CYL-4 410.54		
EXT GAS TEMP DEG. F	EXT-1 975.04	EXT-2 312.14	EXT-3 853.00	EXT-4 1932.7	SEXT-1 1454.5	SEXT-2 1447.0
ENGINE OIL	SOILT 185.60	SOILT 123.02	OILP 73.071	MANIFOLD PRESSURE = 27.718		
DYNO COND.	TORQUE 277.23	RPM 2613.1	CYL. BACK PRESSURE = 29.416			
INDUCTION AIR	TAIRT1 48.526	TAIRT2 48.555	TAIRT1 128.85	TAIRT2 45.703		
ORIFICE AIR	TEMP 92.648	DELTA P 4.8029	ORIF 54.350	FLOW 2981.7		
CILL TEMP. = 91.324	HEATER TEMP = 91.822		COOLER TEMP = 38.646			

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NASA-LEWIS		PRELIMINARY DATA		04/23/76	CADDEII	REF 04/23/76 11:41:51.867		FAC SEX15	PG4 C003	RDG 3659
LFANOUT RE RUNS TO CL APP 50 DEG HUM = 60 %				MODE = 4.0030		NO. SCANS = 5				
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.250		RATED HP. = 160.00		HC RATIO = 2.1250		
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL				
	49.813	29.255	173.12	808.99	3.5719	14.690				
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP				
	73.423	5.4191	44.821	63.579	60.354	6.0672				
COOLING AIR	TEMP	UNFL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT				
	53.266	3.0045	3.8353	9966.6	58.545	35.880				
REL-HUM	1	2	HUMIDITY	% H2O VAPOR		CORRECTED HP				
	58.545	70.047	30.907	0.70972		119.78				
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	PPM-2	TORQUE	RMP			
	0.074604	0.074276	1.1135	2433.8	2437.3	259.12	120.08			
WET CORRECTION F		TEMP = 0.85927		EXHAUST MOLE. WT. = 28.122		EXHAUST DENSITY = 0.072816		EXHAUST FLOW RATE = 11987.		
MEASURED CONC.	PART PER MILLION WET		PER CENT							
	HC PPM	NOX PPM	CO DRY	CO2 DRY	NO2 DRY					
	887.99	1023.5	4.2566	11.788	0.36464					
CORRECTED CONC. TO WET BASIS			3.6576	10.129	0.31332					
EMISSION RATE	HC	NOX	CO							
	0.38216	1.4601	31.835							
EMISSION MASS/MODE	0.031847	0.12157	2.6528							
EMISSION MASS/RATED HP	0.00019904	0.00076046	0.016580							
MODE EMISS./STD. CYCLE %	10.476	50.697	39.475							
CAL. FUEL AIR RATIO = 0.075194		MEAS. FUEL AIR RATIO = 0.074604		DIFF MEAS. & CAL. F/A PERCENT = 0.79024						
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4						
	362.19	390.55	400.14	369.24						
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2				
	1445.5	-454.00	934.67	1970.1	1415.2	1411.8				
ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 27.032						
	185.05	298.47	71.703							
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.387							
	269.62	2343.1								
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2						
	49.339	49.813	105.06	45.874						
ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW						
	93.152	4.7515	54.200	2966.0						
CELL TEMP. = 82.644		HEATER TEMP = 91.781		COOLER TEMP = 38.491						

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NASA-LEWIS PRELIMINARY DATA 04/23/76 CADDEII REC 04/23/76 11:47:15.392 FAC SEX15 PG4 C003 RDG 0660

LEANOUT RE RUNS TO CL APP 50 DEG HUM = 60 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.250 RATED HP. = 150.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DPV FLOW	VAPOR FLOW	PRESS TOTAL
	51.573	29.248	103.86	477.88	2.1071	14.481

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	75.819	5.4851	44.758	45.914	43.135	6.0585

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	53.375	2.9749	3.8157	9911.5	53.993	35.484

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	53.993	47.611	30.844	0.70875	65.542

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	PPM-1	PPM-2	TORQUE	RHP
	0.090265	0.089868	1.3472	2348.6	2351.8	145.69	65.598

WET CORRECTION FACTOR = 0.87130 EXHAUST MOLE. WT. = 25.898 EXHAUST DENSITY = 0.069644 EXHAUST FLOW RATE = 7511.3

MEASURED CONC.	PART PER MILLION WET	NOX PPM	CO DRY	PER CENT	O2 DRY
	2060.7	37.804	8.7925	9.4623	0.073507
CORRECTED CONC. TO WET BASIS			7.6529	8.2452	0.064052

	HC	NOX	CO
EMISSION RATE	0.55568	0.033790	41.732
EMISSION MASS/MODE	0.055568	0.0033790	4.1732
EMISSION MASS/RATED HP	0.00034730	2.1119E-05	0.026083
MODE EMIS./STD. CYCLE %	19.279	1.4079	62.107

CAL. FUEL AIR RATIO = 0.087731 VEAS. FUEL AIR RATIO = 0.090265 DIFF MEAS. & CAL. F/A PERCENT = -2.8071

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	309.84	316.20	311.79	312.22

EXT GAS TEMP DEG.F	FXT-1	EXT-2	EXT-3	FXT-4	SEXT-1	SEXT-2
	1257.9	-454.00	620.46	1737.6	1155.2	1160.5

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE =
	180.95	332.10	72.003	18.459

DYNO COND.	TORQUE	RPM	CYL. PACK PRESSURE =
	149.75	2297.1	29.321

INDUCTION AIR	IAIPT1	IAIPT2	TAIRT1	TAIRT2
	50.990	51.573	188.13	46.475

CRIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	93.899	4.7129	54.298	2953.0

CELL TEMP. = 83.402 HEATER TEMP = 91.760 COOLER TEMP = 37.828

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NASA-LEWIS PRELIMINARY DATA 04/23/76 CADDIT REC 04/23/76 11:50:53.974 FAC SEX15 PGM C003 R06 3661

LEANOUT PE RUNS TO CL APP 50 DEG HUM = 60 ? MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.250 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	47.813	29.249	196.00	923.74	4.0930	14.802

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPID
	72.231	5.4293	44.352	65.105	65.166	6.0255

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	52.001	3.0554	3.8912	10060.	63.799	36.160

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	63.799	23.202	31.016	0.71223	145.45

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.070545	0.070235	1.0529	2692.6	2696.1	277.58	142.31

WET CORRECTION FACTOR = 0.86157 EXHAUST MOLE. WT. = 28.469 EXHAUST DENSITY = 0.073713 EXHAUST FLOW RATE = 13471.

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	NOX PPM	CO DRY
697.31	1566.2	1.9307
CORRECTED CONC. TO WET BASIS		1.6534

	HC	NOX	CO
EMISSION RATE	0.33723	2.5107	16.268
EMISSION MASS/MODE	0.0016862	0.012553	0.081342
EMISSION MASS/RATED HP	1.0538E-05	7.8458E-05	0.00050839
MODE EMIS./STD. CYCLE ?	0.55465	5.2305	1.2104

CAL. FUEL AIR RATIO = 0.070880 MEAS. FUEL AIR RATIO = 0.070546 DIFF MEAS. & CAL. F/A PERCENT = 0.47314

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	422.84	416.34	404.50	410.59

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1616.3	216.91	1013.6	1927.5	1456.4	1447.2

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 27.504
	181.64	213.35	73.267	

DYNO COND.	TORQUE	RPM	CYL. PACK PRESSURE = 29.405
	284.39	2631.4	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	47.410	47.813	158.40	45.390

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	91.761	4.7817	54.223	2978.2

CFLI TEMP. = 91.634 HEATER TEMP = 91.732 COOLER TEMP = 39.282

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NASA-LEWIS PRELIMINARY DATA 04/23/76 CADDEII REC 04/23/76 11:57:11.496 FAC SEX15 PGM C003 RDG 3662  
 LEANOUT RE RUNS TO CL APP 50 DEG HUM = 60 ° MODE = 4.0000 NO. SCANS = 5  
 ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.250 LATED HP. = 160.00 HC RATIO = 2.1250  
 COMB. AIR TEMP 49.092 PRESS 29.281 CFM 173.22 DRY FLOW 808.83 VAPOR FLOW 3.5942 PRESS TOTAL 14.689  
 COMB. FUEL TEMP 72.515 PRESS 5.4158 DENSITY 44.845 TURBO FLOW 64.413 FLOW FROM 60.852 FPIP 6.0432  
 COOLING AIR TEMP 52.538 UDEL-HOOD 2.9727 DEL-HOOD 4.0014 FLOW 9907.3 REL-HUM 60.525 DEW-POINT 36.040  
 REL-HUM 1 60.525 2 39.778 HUMIDITY 31.106 % H2O VAPOR CORRECTED HP 0.71429 119.70  
 ENG. COND. F/A DRY 0.075234 F/A WET 0.074902 EQU. RATIO 1.1229 PPM-1 2435.0 PPM-2 2438.0 TORQUE 259.03 BHP 120.09  
 WET CORRECTION FACTOR = 0.86116 EXHAUST MOLE. WT. = 28.070 EXHAUST DENSITY = 0.072679 EXHAUST FLOW RATE = 12015.  
 MEASURED CONC. PART PER MILLION WET HC PPM 852.29 NOX PPM 870.79 CO DRY 4.3200 PER CENT CO2 DRY 11.795 O2 DRY 0.36944  
 CORRECTED CONC. TO WET BASIS 3.7202 10.158 0.31814  
 EMISSION RATE HC 0.37195 NOX 1.2451 CO 32.452  
 EMISSION MASS/MODE 0.030996 0.10376 2.7043  
 EMISSION MASS/RATED HP 0.00019372 0.00064848 0.016902  
 MODE EMIS./STD. CYCLE % 10.196 43.232 40.243  
 CAL. FUEL AIR RATIO = 0.075277 MEAS. FUEL AIR RATIO = 0.075234 DIFF MEAS. & CAL. F/A PERCENT = 0.056645  
 CYL TEMP DEG.F CYL-1 366.26 CYL-2 389.14 CYL-3 397.92 CYL-4 363.07  
 EXT GAS TEMP DEG.F EXT-1 548.22 EXT-2 -454.00 EXT-3 968.41 EXT-4 1911.3 SEXT-1 1409.1 SEXT-2 1406.2  
 ENGINE OIL FILT 135.75 SOILT 310.34 OILP 72.067 MANIFOLD PRESSURE = 26.995  
 DYNO COND. TORQUE 251.46 RPM 2354.4 CYL. PACK PRESSURE = 29.366  
 INDUCTION AIR IAIRT1 49.681 IAIRT2 49.092 TAIRT1 153.70 TAIRT2 46.241  
 ORIFICE AIR TEMP 92.093 DELTAP 4.9151 ORFP 54.301 FLOW 2986.6  
 CELI TEMP. = 82.117 HEATED TEMP = 91.704 COOLER TEMP = 39.127

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NASA-LEWIS PRELIMINARY DATA 04/23/76 CADDE11 REC 04/23/76 12:01:03.415 FAC SEX15 PGM C003 RDG 3663

LEANOUT RE RUNS TO CL APP 50 DEG HUM = 60 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.253 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CF4	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	50.507	29.251	103.10	474.11	2.1063	14.481

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIF
	74.702	5.4968	44.787	43.110	40.753	5.9997

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	52.411	2.9325	3.8923	9832.1	56.594	35.674

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	56.594	42.418	31.099	0.71414	66.126

ENG. CON.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.085957	0.085577	1.2329	2351.8	2354.9	147.98	66.263

WET CORRECTION FACTOR = 0.86587 EXHAUST MOLE WT. = 27.217 EXHAUST DENSITY = 0.070471 EXHAUST FLOW RATE = 7335.9

MEASURED CONC.	PART PER MILLION WET	CO DRY	PER CENT	CO DRY
	HC PPM	7.6414	10.162	0.073407
	NOX PPM	6.6165	8.7990	0.063551

EMISSION RATE	HC	NOX	CO
	0.47093	0.14139	35.239
EMISSION MASS/MODE	0.047093	0.014139	3.5239
EMISSION MASS/RATED HP	0.00029433	8.8370E-05	0.022024
MODE EMIS./STD. CYCLE %	15.491	5.8913	52.438

CAL. FUEL AIR RATIO = 0.084501 MEAS. FUEL AIR RATIO = 0.085957 DIFF MEAS. & CAL. F/A PERCENT = -1.6944

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	319.35	319.50	325.10	315.67

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1416.4	1454.00	774.88	1684.7	1188.9	1194.7

ENGINE OIL	ERTLT	STILT	OILT	MANIFOLD PRESSURE
	133.10	70.337	71.347	18.438

DYNO COND.	TORQUE	RPM	CYL. RACK PRESSURE
	143.15	2300.4	29.303

INDUCTION AIR	TAIPT1	TAIPT2	TAIRT1	TAIRT2
	49.953	50.507	99.312	46.734

ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW
	92.735	4.7919	54.266	2978.5

CELL TEMP. = 81.897 HEATER TEMP = 91.497 COOLEI TEMP = 39.282

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NASA-LEWIS PRELIMINARY DATA 04/23/76 CADDEII REC 04/23/76 12:09:29.126 FAC SEX15 PGM C003 RDG 3655

LEANOUT RE RUNS TO CL APP 50 DEG HUM = 60 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.250 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	50.871	29.249	177.80	830.78	3.7057	14.698

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW FROM	FPIF
	75.039	5.4383	44.778	59.277	55.836	6.0444

COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	54.465	2.9300	3.8508	9827.4	56.894	36.150

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	56.894	51.755	31.224	0.71700	120.32

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.067209	0.056910	1.0031	2430.5	2434.4	260.31	120.47

WET CORRECTION FACTOR = 0.85290 EXHAUST MOLE. WT. = 28.670 EXHAUST DENSITY = 0.074233 EXHAUST FLOW RATE = 11993.

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	1417.4	1.8582
CO2 DRY		12.980
CORRECTED CONC. TO WET BASIS		1.5934
		11.071
		0.37018

EMISSION RATE	HC	NOX	CO
	0.13066	2.0230	13.874
EMISSION MASS/MODE	0.010888	0.16859	1.1562
EMISSION MASS/RATED HP	5.8050E-05	0.0010537	0.0072261
MODE EMIS./STD. CYCLE %	3.5816	70.244	17.205

CAL. FUEL AIR RATIO = 0.069570 MEAS. FUEL AIR RATIO = 0.067209 DIFF MEAS. & CAL. F/A PERCENT = 3.5129

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	386.67	401.59	376.26	377.75

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1415.2	-434.82	878.21	2003.9	1521.9	1513.8

ENGINE OIL	FILT	SOILT	OIL	MANIFOLD PRESSURE = 27.336
	195.67	347.29	71.963	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.423
	261.16	2370.9	

INDUCTION AIR	TAIPT1	TAIPT2	TAIRT1	TAIRT2
	50.425	50.871	159.04	46.162

ORIFICE AIR	TEMP	DELTAP	DEFP	FLOW
	93.925	4.3434	54.292	2961.6

CELL TEMP. = 83.884 HEATER TEMP = 91.697 COOLER TEMP = 39.172

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NASA-LEWIS	PRELIMINARY DATA	04/23/76	CADDELL	REC 04/23/76 12:06:08.682	FAC SEX15	PGM C003	RDG 3554
LEANOUT RE RUNS TO CL APP 50 DEG HUM = 60 %		MODE = 3.0000		NO. SCANS = 5			
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.250		PATED HP. = 160.00		HC RATIO = 2.1250
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	49.512	29.242	205.87	973.08	4.3281	14.842	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	74.178	5.4323	44.801	59.051	65.908	6.0435	
COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT	
	53.720	3.0028	3.9507	9963.5	60.259	36.325	
REL-HUM	1	2	HUMIDITY	H2O VAPOR CORRECTED HP			
	60.259	42.704	31.135	0.71495		152.55	
ENG. COND.	F/A DRY	F/A WET	FQU. RATIO	PPM-1	PPM-2	TORQUE	BHP
	0.067731	0.057431	1.0109	2701.1	2704.6	289.60	148.94
WET CORRECTION FACTOR = 0.85681		EXHAUST MOLE. WT. = 28.636		EXHAUST DENSITY = 0.074146		EXHAUST FLOW RATE = 14071.	
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	NO2 DRY		
	643.62	1917.6	1.2150	13.537	0.17640		
CORRECTED CONC. TO WET BASIS			1.0410	11.599	0.15114		
EMISSION RATE	HC	NOX	CO				
	0.32513	3.2109	10.635				
EMISSION MASS/MODE	0.0016256	0.016055	0.053174				
EMISSION MASS/RATED HP	1.0160E-05	0.00010034	0.00033234				
MODE EMISS./STD. CYCLE %	0.53475	6.6895	0.79128				
CAL. FUEL AIR RATIO = 0.069197		MEAS. FUEL AIR RATIO = 0.067731		DIFF MEAS. & CAL. F/A PERCENT = 2.1499			
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	399.97	413.29	405.21	409.24			
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	1554.6	370.91	1045.8	2011.9	1486.8	1477.0	
ENGINE OIL	FOILT	STILT	OILP	MANIFOLD PRESSURE = 28.262			
	184.78	68.142	73.387				
DYNO COND.	TORQUE	RPM	CYL. PACK PRESSURE = 29.440				
	290.72	2637.3					
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2			
	49.101	49.512	175.48	45.292			
ORIFICE AIR	TEMP	DELTAP	ORIF	FLOW			
	93.396	4.7465	54.230	2963.9			
CELL TEMP. = 85.111		HEATER TEMP = 91.477		COOLER TEMP = 37.446			

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NASA-LEWIS PRELIMINARY DATA 04/23/76 CANDELL REC 04/23/76 12:13:09.751 FAC SEX15 PGM C003 RDG 3666

LEANOUT RE PUNS TO CL APP 50 DEG HUM = 60 % MODF = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.250 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	49.202	29.248	111.62	513.93	2.2902	14.501

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	74.808	5.5530	44.784	35.239	33.465	6.1608

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT
	51.364	2.9715	3.8530	9905.3	59.671	35.784

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	59.671	44.642	31.194	0.71632	64.863

ENG. COND.	F/A DRY	F/A WET	F/O. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.065117	0.064828	0.97190	2353.5	2357.0	145.28	65.102

WET CORRECTION FACTOR = 0.87356 EXHAUST MOLE. WT. = 28.768 EXHAUST DENSITY = 0.074487 EXHAUST FLOW RATE = 7379.5

MEASURED CONC.	PART PER MILLION WET			PER CENT	
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	292.91	1360.0	0.29135	13.476	1.1254
CORRECTED CONC. TO WET BASIS			0.25451	11.772	0.98311

EMISSION RATE	HC	NOX	CO
	0.077599	1.1943	1.3635
EMISSION MASS/MODE	0.0077599	0.11943	0.13635
EMISSION MASS/PATED HP	4.8499E-05	0.00074646	0.00085221
MODE EMIS./STD. CYCLE %	2.5526	49.764	2.0291

CAL. FUEL AIR RATIO = 0.064242 MEAS. FUEL AIR RATIO = 0.065117 DIFF MEAS. & CAL. F/A PERCENT = -1.3446

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	332.93	324.15	338.66	342.07

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1373.0	181.97	1205.6	1919.9	1331.5	1333.3

ENGINE OIL	FILT	SOILT	OILP	MANIFOLD PRESSURE = 19.711
	194.12	136.63	71.401	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.399
	149.24	2324.5	

INDUCTION AIR	TAIPT1	TAIRT2	TAIRT1	TAIRT2
	48.654	49.202	102.22	46.783

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	91.578	4.8247	54.277	2990.6

CFLI TEMP. = 81.342 HEATER TEMP = 91.704 COOLER TEMP = 39.163

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NASA-LEWIS PRELIMINARY DATA 04/23/76 CADDET REC 04/23/76 12:21:11.444 FAC SEX15 PGM C003 RDG 3667

LEANOUT RE RUNS TO CL APP 50 DEG HUM = 60 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.250 RATED HP = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	49.019	29.282	205.79	970.75	4.3505	14.836

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FIP
	72.257	5.3822	44.952	80.158	77.192	6.1257

COOLING AIR	TEMP	DELT-HUMID	DELT-HUMID	FLOW	REL-HUM	DEW-POINT
	53.902	2.9824	3.8505	9927.5	61.817	36.505

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	61.817	55.889	31.371	0.72038	153.82

ENG. COND.	F/A DRY	F/A WET	FUEL RATIO	PPM-1	PPM-2	TORQUE	BHP
	0.079518	0.079153	1.1368	2702.3	2706.1	292.50	150.50

WET CORRECTION FACTOR = 0.86127 EXHAUST MOLE WT. = 27.719 EXHAUST DENSITY = 0.071771 EXHAUST FLOW RATE = 14661.

MEASURED CONC.	PART PER MILLION WET			PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY	
	1072.2	242.20	5.4863	11.295	0.028723	
CORRECTED CONC. TO WET BASIS			4.7251	9.7284	0.024738	

	HC	NOX	CO
EMISSION RATE	0.56436	0.42258	50.295
EMISSION MASS/MODE	0.0028218	0.0021129	0.25148
EMISSION MASS/RATED HP	1.7636E-05	1.3206E-05	0.0015718
MODE EMIS./STD. CYCLE %	0.92822	0.98038	3.7423

CAL. FUEL AIR RATIO = 0.079124 MEAS. FUEL AIR RATIO = 0.079518 DIFF MEAS. & CAL. F/A PERCENT = -0.49502

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	412.59	434.20	405.78	422.97

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1518.7	214.39	799.82	1853.4	1435.6	1431.9

ENGINE OIL	TEMP	TEMP	OIL	MANIFOLD PRESSURE
	185.04	246.53	72.851	28.143

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	276.43	2628.7	29.417

INDUCTION AIR	TAIPT1	TAIPT2	TAIRT1	TAIRT2
	48.581	49.019	144.61	46.076

ORIFICE AIR	TEMP	DELTAP	ORIF	FLOW
	92.474	4.8130	54.255	2985.0

CELL TEMP. = 82.715 HEATER TEMP = 92.978 COOLER TEMP = 39.072

822

NASA-LFWIS PRELIMINARY DATA 04/23/76 CADDEII REC 04/23/76 12:55:54.949 FAC SEX15 PGM C003 RRG 3658

LEANOUT RE-RUNS TO CL APP 50 DEF HUM = 80 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEF. BAROMETRIC PRESSURE = 29.250 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	49.877	29.266	201.54	946.75	5.9459	14.814

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIF
	72.400	5.3522	44.948	84.047	80.237	6.0813

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	PFL-HUM	DEW-POINT
	54.302	2.8658	3.8386	9705.8	83.531	45.095

PFL-HUM	1	2	HUMIDITY	H2O VAPOR CORRECTED HP
	83.531	43.922	43.762	1.0095

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.084750	0.084221	1.2549	2708.4	2712.4	282.61	145.74

WET CORRECTION FACTOR = 0.85221 EXHAUST MOLE. WT. = 27.309 EXHAUST DENSITY = 0.070709 EXHAUST FLOW RATE = 14608.

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	1424.7	128.24	8.3766	9.7500	0.0089409
CORRECTED CONC. TO WET BASIS			7.1386	8.3090	0.0076195

	HC	NOX	CO
EMISSION RATE	0.74718	0.22293	75.708
EMISSION MASS/MODE	0.0037259	0.0011147	0.37854
EMISSION MASS/PATED HP	2.3349E-05	5.9567E-06	0.0023659
MODE FMS./STD. CYCLE %	1.2289	0.46444	5.6331

CAL.FUEL AIR RATIO = 0.086475 MEAS. FUEL AIR RATIO = 0.084750 DIFF MEAS.& CAL. F/A PERCENT = 2.0358

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	372.93	411.93	380.43	410.50

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1316.4	1454.00	556.28	1773.0	1349.3	1344.0

ENGINE OIL	FILT	SOILT	OIL	MANIFOLD PRESSURE = 27.691
	176.96	228.90	74.219	

DYMO COND.	TORQUE	RPM	CYL BACK PRESSURE = 29.439
	273.50	2641.0	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	49.403	49.877	-15.262	45.982

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	93.665	3.6979	54.343	2622.5

CELL TEMP. = 83.251 HEATER TEMP = 92.934 COOLER TEMP = 37.137

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NASA-LEWIS PRELIMINARY DATA 04/23/76 CADDEII REC 04/23/76 13:00:10.674 FAC SEX15 PGM C003 RDG 3659

LEANOUT RE-RUNS TO CL APP 50 DFG HUM = 80 % MODE = 4.0300 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.250 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	49.019	29.264	157.69	778.96	4.9497	14.671

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIF
	71.313	5.3894	44.377	66.414	65.139	6.0657

COOLING AIR	TEMP	WDEL-HUMID	DEL-HUMID	FLOW	REL-HUM	DEW-POINT
	52.465	2.9649	3.8735	9892.8	86.414	45.145

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	86.414	46.587	44.480	1.0214	119.43

ENG. COND.	F/A DRY	F/A WET	EQV. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.083623	0.083095	1.2481	2433.4	2436.4	257.68	119.39

WET CORRECTION F/A DRY = 0.85599 EXHAUST MILE. WT. = 27.395 EXHAUST DENSITY = 0.070933 EXHAUST FLOW RATE = 11969.

MEASURED CONC.	PART PER MILLION WET	WET DRY	PER CENT	CO2 DRY	O2 DRY
	1550.7	333.99	7.5170	10.129	0.033263
CORRECTED CONC. TO WET BASIS			6.4345	8.6703	0.028473

	HC	NOX	CO
EMISSION RATE	0.66633	0.47574	55.915
EMISSION MASS/MODE	0.055528	0.039645	4.6597
EMISSION MASS/RATED HP	0.00034705	0.00024778	0.029123
MODE FMS./STD. CYCLE %	18.266	16.519	69.340

CAL. FUEL AIR RATIO = 0.084363 MEAS. FUEL AIR RATIO = 0.083623 DIFF MEAS. & CAL. F/A PERCENT = 0.88427

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	339.48	381.60	381.43	402.87

EXT GAS TEMP DEG.F	FXT-1	FXT-2	FXT-3	FXT-4	SEXT-1	SEXT-2
	1344.9	1454.00	1495.50	1681.3	1302.6	1300.1

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 26.456
	181.88	228.95	71.879	

DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.431
	246.99	2371.3	

INDUCTION AIR	TAIPT1	TAIPT2	TAIRT1	TAIRT2
	49.635	49.019	109.00	46.677

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	91.970	3.6741	54.385	2618.1

CILL TEMP. = 80.769 HEATER TEMP = 92.630 COOLER TEMP = 38.000

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NASA-LEWIS PRELIMINARY DATA 04/23/76 CADDETT REC 04/23/76 13:03:46.623 FAC SEX15 PGM C003 RDG 3670

LEANOUT PF-RUNS TO CL ADD 50 DEG HUM = 80 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.250 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	50.516	29.234	108.65	497.95	3.1605	14.493

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	74.773	5.5421	44.785	34.099	32.835	6.0705

COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	52.675	2.9541	3.5965	9872.5	80.646	44.795

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	80.646	56.425	44.430	1.0203	65.074

ENG. COND.	F/A DRY	F/A WET	F2O. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.065941	0.065525	0.99420	2348.6	2352.5	145.25	64.953

WET CORRECTION FACTOR = 0.96327 EXHAUST MOLE. WT. = 28.736 EXHAUST DENSITY = 0.074404 EXHAUST FLOW RATE = 7176.3

MEASURED CONC.	PART PER MILLION WET		C1 DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	434.44	1433.3	0.75460	13.038	0.60276
CORRECTED CONC. TO WET BASIS			0.65006	11.255	0.52034

	HC	NOX	CO
EMISSION RATE	0.11192	1.2240	3.4389
EMISSION MASS/MODE	0.011192	0.12240	0.34389
EMISSION MASS/RATED HP	5.9953E-05	0.00076503	0.0021453
MODE EMISS./STD. CYCLE %	3.6817	51.002	5.1174

CAL. FUEL AIR RATIO = 0.065855 MEAS. FUEL AIR RATIO = 0.065941 DIFF MEAS. & CAL. F/A PERCENT = 1.3860

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	326.46	333.53	338.23	341.34

FXT GAS TEMP DEG.F	FXT-1	FXT-2	FXT-3	FXT-4	SXT-1	SXT-2
	1509.4	-410.23	1004.9	2013.4	1274.2	1272.0

ENGINE OIL	OILT	SOILT	OIL2	MANIFOLD PRESSURE = 19.466
	181.87	174.29	71.503	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.303
	149.75	2332.4	

INDUCTION AIR	TAIPT1	TAIPT2	TAIRT1	TAIRT2
	49.950	50.516	121.94	47.361

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	92.483	3.6428	54.380	2605.8

CELL TEMP. = 82.187 HEATED TEMP = 92.506 COOLER TEMP = 37.664

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NASA-LEWIS PRELIMINARY DATA 04/23/76 CADDEII REC 04/23/76 13:14:23.184 FAC SEX15 PGM C003 RDG 3671

LEANOUT RE-RUNS TO CL APP 50 DEG HUM = 80 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.250 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	50.169	29.261	207.00	973.89	6.2398	14.841

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	72.969	5.3651	44.833	82.557	80.162	6.0693

COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	55.019	2.8999	3.8335	9770.4	84.420	45.660

REL-HUM	1	2	HUMIDITY	* H2O VAPOR CORRECTED HP
	84.420	60.346	44.843	1.0297 155.58

ENG. COND.	F/A DRY	F/A WET	FQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.082311	0.081787	1.2295	2704.4	2708.4	293.90	151.35

WET CORRECTION FACTOR = 0.85635 EXHAUST MOLE WT. = 27.498 EXHAUST DENSITY = 0.071198 EXHAUST FLOW RATE = 14892.

MEASURED CONC.	PART PER MILLION WET	PER CENT
	HC PPM	CO2 DRY
	1260.0	10.426
CORRECTED CONC. TO WET BASIS	NOX PPM	CO DRY
	211.13	8.0287
	6.9352	0.013761
	5.9390	0.011785

	HC	NOX	CO
EMISSION RATE	0.67364	0.37416	64.211
EMISSION MASS/MODE	0.0033682	0.0018708	0.32105
EMISSION MASS/RATED HP	2.1051E-05	1.1692E-05	0.0020066
MODE EMISS./STD. CYCLE	1.1080	0.77950	4.7776

CAL. FUEL AIR RATIO = 0.082844 MEAS. FUEL AIR RATIO = 0.082311 DIFF MEAS. & CAL. F/A PERCENT = 0.64796

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	385.15	414.74	383.32	408.95

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1544.8	-454.00	705.63	1848.4	1388.4	1383.9

ENGINE OIL	EQILT	SOILT	OILP	MANIFOLD PRESSURE
	185.09	277.06	73.150	28.243

DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	300.49	2553.4	29.472

INDUCTION AIR	IAIPT1	IAIRT2	TAIRT1	TAIPT2
	49.722	50.169	54.399	46.041

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	93.813	3.6584	53.723	2608.2

CELL TEMP. = 84.042 HEATER TEMP = 92.091 COOLER TEMP = 37.001

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NASA-LEWIS PRELIMINARY DATA 04/23/76 CADD511 REC 04/23/76 13:21:43.005 FAC SEX15 PGM C003 RDG 3672

LEANOUT RE-RUNS TO CL APP 50 DEG HUM = 80 % MODE = 4.0000 NR. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.250 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	43.964	29.257	166.07	770.99	4.9538	14.668

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRCN	FPIR
	72.035	5.4056	44.958	61.869	60.639	6.0261

COOLING AIR	TEMP	INLET-HUM	DEL-HUMID	FLOW	RFL-HUM	DEL-POINT
	52.629	2.9491	3.8339	9863.3	87.532	45.430

REL-HUM	1	2	HUMIDITY	2 H2O VAPOR	CORRECTED HP
	P7.532	49.113	44.977	1.0328	119.99

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	PPM-1	PPM-2	TORQUE	BHP
	0.078650	0.078148	1.1739	2433.0	2436.8	258.93	119.95

WET CORRECTION FACTOR = 0.84724 EXHAUST MOLE. WT. = 27.799 EXHAUST DENSITY = 0.071952 EXHAUST FLOW RATE = 11626.

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	CO DRY
	HC PPM	NOX PPM			
	1233.9	378.50	6.3575	10.712	0.043104
CORRECTED CONC. TO WET BASIS			5.3363	9.0752	0.036520

	HC	NOX	CO
EMISSION RATE	0.55675	0.52341	45.467
EMISSION MASS/MODE	0.046396	0.043618	3.7889
EMISSION MASS/RATED HP	0.00028997	0.00027261	0.023680
MODE EMIS./STD. CYCLE %	15.262	18.174	56.382

CAL. FUEL AIR RATIO = 0.081402 MEAS. FUEL AIR RATIO = 0.078650 DIFF MEAS. & CAL. F/A PERCENT = 3.4989

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	362.86	380.40	386.83	384.23

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	891.77	-454.00	689.51	1804.6	1317.5	1315.1

ENGINE OIL	SOILT	SOILT	OILP	MANIFOLD PRESSURE = 26.376
	185.24	171.19	71.955	

DYMO COND.	TORQUE	PPM	CYL. BACK PRESSURE = 29.364
	271.26	2354.4	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	49.508	48.964	71.258	46.834

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	91.569	3.6067	54.291	2595.1

CELL TEMP. = 82.469 HEATER TEMP = 92.008 COOLER TEMP = 38.691

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NASA-LEWIS PRELIMINARY DATA 04/23/76 CANNETT REC 04/23/76 13:25:57.201 FAC SEF15 PGM C003 RDG 3673

LEANOUT RE-RUNS TO CL APP 50 DEG HUM = 80 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PREFERENCE = 29.250 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	50.306	29.257	115.94	531.93	3.4171	14.508

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	75.482	5.5566	44.767	34.502	32.679	6.1154

COOLING AIR	TEMP	UNEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	52.738	2.8694	3.8134	9712.6	82.335	45.135

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	82.335	51.235	44.968	1.0326	65.841

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.061435	0.061043	0.91694	2349.5	2351.8	146.91	65.722

WET CORRECTION FACTOR = 0.87049 EXHAUST MOLE. WT. = 28.835 EXHAUST DENSITY = 0.074664 EXHAUST FLOW RATE = 7607.8

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	153.32	1485.7	0.094938	12.855	1.7102
CORRECTED CONC. TO WET BASIS			0.082642	11.190	1.4887

	HC	NOX	CO
EMISSION RATE	0.041873	1.3451	0.45645
EMISSION MASS/MODE	0.0041873	0.13451	0.045645
EMISSION MASS/RATED HP	2.6171E-05	0.00084067	0.00028528
MODE EMISS./STD. CYCLE %	1.3774	55.045	0.67925

CAL. FUEL AIR RATIO = 0.061877 VEAS. FUEL AIR RATIO = 0.06143% DIFF MEAS. & CAL. F/A PERCENT = 0.71853

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	326.54	323.60	332.65	336.56

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1257.6	-380.71	1023.7	1936.0	1273.2	1270.2

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 20.379
	184.33	239.53	71.575	

DYND COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.359
	141.88	2302.7	

INDUCTION AIR	IAIPT1	IAIPT2	TAIPT1	TAIPT2
	49.786	50.206	83.942	47.229

ORIFICE AIR	TEMP	DELTAP	ORFD	FLOW
	92.248	3.7076	54.467	2629.3

CELL TEMP. = 82.573 HEATER TEMP = 91.960 COOLER TEMP = 37.664

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NASA-LEWIS PRELIMINARY DATA 04/23/76 CADDILLAC REC 04/23/76 13:33:38.683 FAC SEX15. PGM C003 RDG 3674

LEANOUT RE-RUNS TO CL APP 50 DEG HUM = 80 % MODE = 3.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.250 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	49.686	29.227	206.00	969.76	6.0396	14.843

COMP. FUEL	TEMP	PRESS	DENSITY	TUPRO FLOW	FLOW TRCN	FPIP
	73.556	5.3753	44.817	79.266	77.048	6.0657

COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	54.329	3.0125	3.8301	9981.5	83.587	44.925

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	83.587	32.955	43.588	1.0009	154.18

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.079450	0.078956	1.1959	2702.8	2706.4	291.29	149.91

WET CORRECTION FACTOR = 0.85110 EXHAUST MOLE. WT. = 27.725 EXHAUST DENSITY = 0.071785 EXHAUST FLOW RATE = 14686.

MEASURED CONC.	PART PER MILLION WET		PER CENT	CO DRY	CO2 DRY	O2 DRY
	HC PPM	NOX PPM				
	1193.0	299.95	6.3269	10.693	0.013621	
CORRECTED CONC. TO WET BASIS			5.3848	9.1005	0.011593	

EMISSION RATE	HC	NOX	CO
	0.62816	0.52176	57.337
EMISSION MASS/MODE	0.0031468	0.0025088	0.28668
EMISSION MASS/RATED HP	1.9630E-05	1.6305E-05	0.0017918
MODE EMIS./STD. CYCLE %	1.0332	1.0870	4.2561

CAL. FUEL AIR RATIO = 0.081397 MEAS. FUEL AIR RATIO = 0.079450 DIFF MEAS. & CAL. F/A PERCENT = 2.4503

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	388.19	411.60	388.72	404.98

FXT GAS TEMP DEG. F	FXT-1	FXT-2	FXT-3	FXT-4	SEXT-1	SEXT-2
	1376.4	1337.82	719.77	1795.8	1392.4	1386.6

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE
	185.62	279.34	73.283	28.209

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	288.93	2636.8	29.402

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	49.266	49.686	32.255	45.949

REFICE AIR	TEMP	DELTA P	PRESS	FLOW
	93.092	3.6557	54.192	2639.0

CELL TEMP. = 83.901 HEATED TEMP = 91.956 COOLER TEMP = 36.855

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NASA-LEWIS		PRELIMINARY DATA		04/23/76	CADDEII	REC 04/23/76 13:37:23.445		FAC SEX15	PGM C003	RDG 3675
LEANOUT RE-RUNS TO CL APP 50 DEG HUM = 80 %				MODE = 4.11000		NO. SCANS = 5				
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.250			RATED HP. = 160.00		HC RATIO= 2.1250		
COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL				
	50.799	29.221	164.83	765.78	4.8027	14.654				
COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP				
	74.861	5.4209	44.783	60.945	60.093	6.0357				
COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT				
	54.429	2.9334	3.8367	9833.7	79.743	44.775				
REL-HUM	1	2	HUMIDITY	% H2O VAPOR		CORRECTED HP				
	79.743	38.538	43.901	1.0091		119.78				
ENG. COND.	F/A DRY	F/A WET	EQV. RATIO	RPM-1	RPM-2	TORQUE	BHP			
	0.078473	0.077994	1.1712	2429.6	2433.1	258.38	119.52			
WET CORRECTION FACTOR = 0.85463			EXHAUST MOLE. WT. = 27.803		EXHAUST DENSITY = 0.071990		EXHAUST FLOW RATE = 11538.			
MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT		O2 DRY	830			
	HC PPM	NOX PPM		CO2 DRY						
	1232.7	496.85	5.6261	11.014	0.058426					
CORRECTED CONC. TO WET BASIS			4.8082	9.4129	0.049932					
EMISSION RATE	HC	NOX	CO							
	0.51064	0.66850	40.279							
EMISSION MASS/MODE	0.042554	0.055708	3.3560							
EMISSION MASS/RATED HP	0.00026596	0.00034818	0.020079							
MODE EMIS./STD. CYCLE %	13.998	23.212	49.940							
CAL. FUEL AIR RATIO = 0.079632		MEAS. FUEL AIR RATIO = 0.078473		DIFF MEAS. & CAL. F/A PERCENT = 1.4770						
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4						
	359.19	390.76	391.76	402.08						
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2				
	1196.8	-454.00	783.69	1803.6	1332.8	1330.1				
ENGINE OIL	SOILT	SOILT	OIL P	MANIFOLD PRESSURE = 26.243						
	185.87	352.77	71.859							
DYNO COND.	TORQUE	RPM	CYL. RACK PRESSURE = 29.380							
	268.38	2346.6								
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2						
	50.333	50.799	82.553	46.100						
ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW						
	93.404	3.6270	54.438	2598.0						
CELL TEMP. = 84.340		HEATER TEMP = 91.559		COOLER TEMP = 36.719						

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NASA-LEWIS PRELIMINARY DATA 04/23/76 CADDEII REC 04/23/76 13:41:50.922 FAC SEX15 PGM C003 RDG 3676

LEANOUT RE-RUNS TO CL APP 50 DEG HUM = 80 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.250 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR TEMP 49.594 PRESS 29.256 CFM 110.72 DRY FLOW 508.21 VAPOR FLOW 3.2074 PRESS TOTAL 14.503

COMP. FUEL TEMP 75.518 PRESS 5.5583 DENSITY 44.766 TURBO FLOW 35.852 FLOW TRCN 32.691 FPIP 6.1215

COOLING AIR TEMP 51.974 UDEL-HOOD 2.8827 DEL-HOOD 3.7797 FLOW 9737.9 REL-HUM 83.046 DEW-POINT 44.665

REL-HUM 1 83.046 2 48.193 HUMIDITY 44.178 % H2O VAPOR 1.0145 CORRECTED HP 66.333

ENG. COND. F/A DRY 0.064326 F/A WET 0.063923 FOU. RATIO 0.96010 RPM-1 2353.0 RPM-2 2355.8 TORQUE 147.96 BHP 66.290

WET CORRECTION FACTOR = 0.87108 EXHAUST MOLE. WT. = 28.792 EXHAUST DENSITY = 0.074550 EXHAUST FLOW RATE = 7298.6

MEASURED CONC. HC PPM 321.49 NOX PPM 1635.4 CO DRY 0.16566 CO2 DRY 13.153 O2 DRY 1.0352  
CORRECTED CONC. TO WET BASIS CO DRY 0.14430 CO2 DRY 11.457 O2 DRY 0.90174

EMISSION RATE HC 0.004237 NOX 1.4204 CO 0.76462  
EMISSION MASS/MODE 0.0084237 0.14204 0.076462  
EMISSION MASS/RATED HP 5.2648E-05 0.00088773 0.00047789  
MODE EMIS./STD. CYCLE % 2.7710 59.182 1.1378

CAL. FUEL AIR RATIO = 0.064195 MEAS. FUEL AIR RATIO = 0.064326 DIFF MEAS. & CAL. F/A PERCENT = -0.20459

CYL TEMP DEG.F CYL-1 330.24 CYL-2 324.55 CYL-3 339.01 CYL-4 341.63

EXT GAS TEMP DEG.F EXT-1 1189.8 EXT-2 -54.691 EXT-3 1107.9 EXT-4 1991.5 SEXT-1 1282.8 SEXT-2 1280.7

ENGINE OIL FOILT 184.55 SOILT 248.31 OILP 71.519 MANIFOLD PRESSURE = 19.747

DYNO COND. TORQUE 140.95 RPM 2294.8 CYL. RACK PRESSURE = 29.414

INDUCTION AIR IAIRT1 49.056 IAIRT2 49.594 TAIRT1 139.66 TAIRT2 46.962

ORIFICE AIR TEMP 91.038 DELTAP 3.7205 ORIF. FLOW 2636.7

CELL TEMP. = 82.407 HEATER TEMP = 91.262 COOLER TEMP = 36.928

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NASA-LEWIS PRELIMINARY DATA 04/23/76 CADDEII RFC 04/23/76 13:50:47.695 FAC SEX15 PGM C003 RDG 3678

LEANOUT RE-RUNS TO CL APP 50 DEG HUM = 80 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PPESSURE = 29.260 RATED HP. = 160.00 HC RATIO = 2.1250

COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	49.731	29.244	155.20	768.28	4.8900	14.675

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	73.431	5.4191	44.821	65.655	60.720	6.0485

COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	53.366	2.8921	3.8890	9755.8	84.306	45.195

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	84.306	51.107	44.554	1.0231	119.78

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.079033	0.078534	1.1796	2428.9	2433.1	258.73	119.65

WET CORRECTION - TOR = 0.85637 EXHAUST MOL. WT. = 27.758 EXHAUST DENSITY = 0.071872 EXHAUST FLOW RATE = 11602.

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	1286.7	549.49	5.6744	10.995	0.064226
CORRECTED CONC. TO WET BASIS			4.8594	9.4157	0.055002

	HC	NOX	CO
EMISSION RATE	0.53596	0.75868	40.922
EMISSION MASS/MODE	0.044663	0.063223	3.4110
EMISSION MASS/RATED HP	0.00027914	0.00039514	0.021319
MODE EMIS./STD. CYCLE %	14.692	26.343	50.759

CAL. FUEL AIR RATIO = 0.079747 NFAS. FUEL AIR RATIO = 0.07003 DIFF MEAS. & CAL. F/A PERCENT = 0.90244

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	364.13	397.84	387.53	407.34

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1731.3	-454.00	700.27	1811.0	1336.0	1333.4

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE
	184.98	162.73	71.639	26.431

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE
	284.05	2403.4	29.364

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	49.293	49.731	155.20	46.505

ORIFICE AIR	TEMP	DELTAP	ORFP	FLOW
	91.317	3.6761	54.431	2620.4

CELL TEMP. = 83.664 HEATER TEMP = 91.440 COOLER TEMP = 37.701

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NASA-LFWIS	PRELIMINARY DATA	04/23/76	CADDE11	REC 04/23/76 13:54:28.349	FAC SEX15	PGM C003	RDG 3679	
LEANOUT RE-RUNS TO CL APP 50 DEG HUM = 80 %		MODE = 5.0000		NO. SCANS = 5				
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.260		RATED HP. = 160.00		HC RATIO= 2.1250	
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL		
	51.072	29.253	102.45	469.76	2.9845	14.488		
COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP		
	76.290	5.5187	44.746	39.322	37.297	6.0459		
COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT		
	53.166	2.8871	3.8300	9746.3	79.045	44.910		
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP			
	79.045	37.408	44.472	1.0212	65.049			
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	PPM-1	PPM-2	TORQUE	RHP	
	0.079395	0.078894	1.1850	2352.4	2356.0	143.85	64.986	
WET CORRECTION F/A = 0.86078		EXHAUST MOLE WT. = 27.729		EXHAUST DENSITY = 0.071797		EXHAUST FLOW RATE = 7103.9		
MEASURED CONC.	PART PER MILLION WET		PER CENT		835			
	HC PPM	NOX PPM	CO DRY	CO2 DRY				O2 DRY
	1492.3	398.74	5.4466	10.997				0.11367
CORRECTED CONC. TO WET BASIS			4.6983	9.4659	0.097846			
EMISSION RATE	HC	NOX	CO					
	0.38060	0.33708	24.180					
EMISSION MASS/MODE	0.038060	0.33708	2.4180					
EMISSION MASS/RATED HP	0.00023787	0.00021068	0.015112					
MODE F/W. STD. CYCLE %	12.520	14.045	35.982					
CAL. FUEL AIR RATIO = 0.079253		MEAS. FUEL AIR RATIO = 0.079305		DIFF MEAS. & CAL. F/A PERCENT = -0.17928				
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4				
	328.12	335.54	331.93	339.15				
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2		
	1482.3	-311.85	837.47	1714.5	1212.0	1215.1		
ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.480				
	184.12	260.11	71.311					
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.351					
	148.34	2311.5						
INDUCTION AIR	TAIPT1	TAIPT2	TAIRT1	TAIRT2				
	50.470	51.072	195.08	46.892				
ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW				
	91.787	3.6547	54.385	2611.7				
CELL TEMP. = 83.524		HEATER TEMP = 90.993		COOLER TEMP = 36.519				

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NASA-LFWIS		PRELIMINARY DATA		04/23/76	CADDET	REC 04/23/76 13:59:40.173		FAC SEX15	PGM C003	RDG 3680	
LEANOUT RE-RUNS TO CL APP 50 DEG HUM = 80 %				MODE = 3.0000		NO. SCANS = 5					
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.260		RATED HP. = 160.00		HC RATIO= 2.1250			
COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL					
	50.124	29.257	199.96	939.08	5.9705	14.811					
COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP					
	74.231	5.3804	44.799	74.157	71.641	6.0855					
COOLING AIR	TEMP	DEFL-HOOD	DEI-HOOD	FLOW	REL-HUM	DEW-POINT					
	54.974	2.9566	3.7927	9877.3	83.766	45.410					
REL-HUM	1	2	HUMIDITY	% H2O VAPOR		CORRECTED HP					
	83.766	-13.507	44.505	1.0220		150.19					
ENG. COND.	F/A DRY	F/A WET	EQH. RATIO	RPM-1	RPM-2	TORQUE	BHP				
	0.076289	0.075807	1.1386	2690.8	2694.7	285.12	146.08				
WET CORRECTION FACTOR = 0.94852		EXHAUST MOLE. WT. = 27.992		EXHAUST DENSITY = 0.072453		EXHAUST FLOW RATE = 14032.					
MEASURED CONC.	PART PER MILLION WET		PER CENT		834						
	CO PPM	NOX PPM	CO DRY	CO2 DRY							
	1093.7	547.73	5.3160	11.139							O2 DRY
											0.037164
CORRECTED CONC. TO WET BASIS			4.5107	9.4514							0.031534
EMISSION RATE	HC	NOX	CO								
	0.55097	0.91464	45.953								
EMISSION MASS/MODE	0.0027549	0.0045732	0.22977								
EMISSION MASS/RATED HP	1.7218E-05	2.8592E-05	0.0014360								
MODE EMISS./STD. CYCLE %	0.90620	1.9055	3.4191								
CAL. FUEL AIR RATIO = 0.078947		MEAS. FUEL AIR RATIO = 0.076289		DIFF MEAS. & CAL. F/A PERCENT = 3.4847							
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4							
	392.67	428.45	401.20	420.61							
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2					
	1182.5	299.64	836.11	1866.8	1414.7	1407.8					
ENGINE OIL	FOILT	SOILT	CIIP	MANIFOLD PRESSURE = 27.887							
	184.85	92.763	72.455								
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.430								
	286.79	2557.0									
INDUCTION AIR	IAIRT1	IAIPT2	TAIRT1	TAIRT2							
	49.704	50.124	158.48	45.954							
ORIFICE AIR	TEMP	DELTA P	DIFF	FLOW							
	92.344	3.6931	54.375	2624.0							
CELL TEMP. = 84.762		HEATER TEMP = 90.758		COOLER TEMP = 37.364							

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NASA-LEWIS	PRELIMINARY DATA		04/23/76	CADDEII	R-C 04/23/76 14:03:44.040		FAC SEX15	PGM C003	RDG 3681
LEANOUT RE-RUNS TO CL APP 50 DEG HUM = 80 %			MODE = 4.0000		NO. SCANS = 5				
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.270		RATED HP. = 160.00		HC RATIO = 2.1250		
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOF FLOW	PRESS TOTAL			
	49.813	29.268	172.21	802.09	5.1351	14.698			
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP			
	74.071	5.4113	44.804	64.459	61.950	6.0300			
COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	PFL-HUM	DEW-POINT			
	53.820	2.9068	3.9117	9783.5	84.674	45.390			
PFL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP				
	84.674	22.732	44.816	1.0201	120.57				
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP		
	0.077236	0.076745	1.1528	2438.8	2442.1	259.33	120.42		
WET CORRECTION FACTOR = 0.86175		EXHAUST MOLE WT. = 27.004		EXHAUST DENSITY = 0.072251		EXHAUST FLOW RATE = 12029.			
MEASURED CONC.	PART PER MILLION WET		PER CENT						
	HC PPM	NOX PPM	CO DRY	CO2 DRY	CO2 WRY				
	1023.6	1044.2	4.9560	11.172	0.32673				
CORRECTED CONC. TO WET BASIS			4.2708	9.5278	0.28156				
	HC	NOX	CO						
EMISSION RATE	0.44207	1.4948	37.300						
EMISSION MASS/MODE	0.036839	0.12457	3.1083						
EMISSION MASS/PATED HP	0.00023024	0.00077856	0.019427						
MODE EMISS./STD. CYCLE %	12.11%	51.904	46.255						
CAL. FUEL AIR RATIO = 0.077149		MEAS. FUEL AIR RATIO = 0.077236		DIFF MEAS. & CAL. F/A PERCENT = -0.11313					
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4					
	355.04	404.62	396.61	384.23					
FXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2			
	570.90	-196.55	947.01	1848.1	1374.8	1371.7			
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 27.042					
	195.06	207.65	71.499						
DYNO COND.	TORQUE	RPM	CYL. RACK PRESSURE = 29.417						
	257.14	2348.5							
INDUCTION AIR	TAIPT1	TAIPT2	TAIRT1	TAIRT2					
	49.357	49.813	195.76	46.233					
ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW					
	91.352	3.6689	54.356	2617.7					
CELL TEMP. = 84.200		HEATER TEMP = 90.502		COOLER TEMP = 37.119					

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NASA-LEWIS		PRELIMINARY DATA		04/23/76	CADDELL	REC 04/23/76 14:15:29.870		FAC SEX15	PGM C003	RDG 3684
LEANOUT PE-RUNS TO CL APP 50 DEG HUM = 80 %				MODE = 4.0000		NO. SCANS = 5				
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.270			ATED HP. = 160.00		HC RATIO = 2.1250	
COMP. AIR	TEMP	PRESS	CFM	DPY FLOW	VAPOR FLOW	PRESS TOTAL				
	49.585	29.273	154.04	762.32	4.9022	14.662				
COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TPOH	FPIP				
	74.364	5.4383	44.796	59.654	56.496	6.0927				
COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT				
	53.466	2.9870	3.9410	9934.2	85.559	45.440				
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP					
	85.559	44.412	45.015	1.0337	120.20					
ENG. COND.	F/A DPY	F/A WET	FUEL RATIO	PPM-1	PPM-2	TORQUE	BHP			
	0.074110	0.073637	1.1061	2430.1	2433.3	259.55	120.09			
WET CORRECTION FACTOR = 0.86192		EXHAUST MOLE. WT. = 28.164			EXHAUST DENSITY = 0.072923		EXHAUST FLOW RATE = 11295.			
MEASURED CONC.	PART PER MILLION WET		PER CENT							
	HC PPM	NOX PPM	CO DRY	CO2 DRY	CO DRY					
	999.70	821.18	3.4072	11.643	0.058386					
CORRECTED CONC. TO WET BASIS				2.9367	10.036	0.050324				
EMISSION RATE	HC	NOX	CO							
	0.40539	1.1038	24.083							
EMISSION MASS/MODE	0.033782	0.091984	2.0069							
EMISSION MASS/RATED HP	0.00021114	0.00057490	0.012543							
MODE EMIS./STD. CYCLE %	11.113	38.327	29.854							
CAL. FUEL AIR RATIO = 0.074781		MEAS. FUEL AIR RATIO = 0.074110		DIFF MEAS. & CAL. F/A PERCENT = 0.90440						
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4						
	386.49	410.25	392.03	409.27						
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2				
	487.24	94.672	913.25	1887.6	1380.3	1377.4				
ENGINE OIL	EQILT	SPILT	OILP	MANIFOLD PRESSURE = 26.182						
	184.64	439.92	71.759							
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.415							
	256.50	2382.1								
INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2						
	49.983	49.585	85.177	46.106						
ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW						
	91.204	3.6458	54.443	2609.9						
OIL TEMP. = 93.000		HEATER TEMP = 90.257		COOLER TEMP = 37.864						

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NASA-LEWIS		PRELIMINARY DATA		04/23/76	CADDF11	RFD 04/23/76 14:21:00.226		FAC SEX15	PGM C003	RDG 3685
LEANOUT RE-RUNS TO CL APP 50 DEG HUM = 80 %										
MODE = 5.0000				NO. SCANS = 5						
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.270			RATED HP. = 160.00		HC RATIO = 2.1250	
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL				
	51.291	29.268	193.65	475.59	3.0612	14.491				
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP				
	77.484	5.5361	44.714	35.773	33.804	6.0846				
COOLING AIR	TEMP	WDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT				
	53.475	2.9145	3.7592	9798.2	79.443	45.155				
REL-HUM	1	2	HUMIDITY	* H2O VAPOR	CORRECTED HP					
	79.443	47.813	45.056	1.0346	65.910					
ENG. COND.	F/A DRY	F/A WET	FUEL RATIO	RPM-1	RPM-2	TORQUE	BHP			
	0.071079	0.070624	1.0609	2352.4	2355.5	146.72	65.717			
WET CORRECTION FACTOR = 0.85593		EXHAUST MOLE. WT. = 28.423			EXHAUST DENSITY = 0.073593		EXHAUST FLOW RATE = 6963.4			
MEASURED CONC.		PART PER MILLION WET.		PER CENT						
		HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY				
		1056.8	750.81	2.8427	11.908	0.15884				
CORRECTED CONC. TO WET BASIS				2.4332	10.192	0.13595				
EMISSION RATE		HC	NOX	CO						
		0.26419	0.62215	12.301						
EMISSION MASS/MODE		0.026418	0.062215	1.2301						
EMISSION MASS/RATED HP		0.00016512	0.00038885	0.0076880						
MODE EMIS./STD. CYCLE %		8.6903	25.923	18.305						
CAL. FUEL AIR RATIO = 0.073198		MEAS. FUEL AIR RATIO = 0.071079		DIFF MEAS. & CAL. F/A PERCENT = 2.9824						
CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4						
	325.36	327.65	328.77	333.51						
EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2				
	752.22	126.81	1091.4	1813.7	1243.5	1245.8				
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 18.639						
	182.73	266.73	71.755							
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.312							
	149.22	2276.7								
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2						
	50.699	51.291	99.352	46.572						
ORIFICE AIR	TEMP	DELTA P	ORFP	FLOW						
	91.952	3.6886	54.363	2623.3						
CFL TEMP. = 84.015	HEATER TEMP = 90.295		COOLER TEMP = 36.000							

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NASA-LEWIS		PRELIMINARY DATA		04/23/76		CADDEII		PFC 04/23/76 14:25:56.222		FAC SEX15		PGM C003		RDG 3686	
LEANOUT RE-RUNS TO CL APP 50 DEG HUM = 90 °				MODE = 3.0000				NO. SCANS = 5							
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.270				RATED HP. = 160.00				HC RATIO = 2.1250			
COMB. AIR		TEMP		PRESS		CFM		DRY FLOW		VAPOR FLOW		PRESS TOTAL			
		49.886		29.278		204.78		964.69		6.1648		14.843			
COMB. FUEL		TEMP		PRESS		DENSITY		TURBO FLOW		FLOW TRON.		FPIP			
		75.359		5.4145		44.770		72.381		70.384		6.0381			
COOLING AIR		TEMP		INLET-HUMID		DEL-HUMID		FLOW		REL-HUM		DEW-POINT			
		54.865		2.9904		3.8264		9940.4		85.121		45.600			
REL-HUM		1		2		HUMIDITY		% H2O VAPOR		CORRECTED HP					
		85.121		12.350		44.733		1.0272		153.39					
ENG. COND.		F/A DRY		F/A WET		EQU. RATIO		RPM-1		RPM-2		TORQUE		RHP	
		0.072960		0.072497		1.0890		2705.1		2708.7		289.96		149.35	
WET CORRECTION FACTOR = 0.86039				EXHAUST VOL. WT. = 28.261				EXHAUST DENSITY = 0.073176				EXHAUST FLOW RATE = 14229.			
MEASURED CONC.		PART PER MILLION WET		PER CENT											
		HC PPM		NOX PPM		CO DRY		CO2 DRY		NO2 DRY					
		932.70		951.59		3.1312		11.827		0.048505					
CORRECTED CONC. TO WET BASIS						2.6582		10.176		0.041733					
EMISSION RATE		HC		NOX		CO									
		0.42537		1.5113		27.564									
EMISSION MASS/MODE		0.0021269		0.0080566		0.13782									
EMISSION MASS/RATED HP		1.3293E-05		5.0354E-05		0.0086138									
MODE EMIS./STD. CYCLE %		0.69962		3.3569		2.0509									
CAL. FUEL AIR RATIO = 0.074012				MEAS. FUEL AIR RATIO = 0.072960				DIFF MEAS. & CAL. F/A PERCENT = 1.4418							
CYL TEMP DEG.F		CYL-1		CYL-2		CYL-3		CYL-4							
		421.30		433.74		415.27		420.55							
EXT GAS TEMP DEG.F		EXT-1		EXT-2		EXT-3		EXT-4		SEXT-1		SEXT-2			
		761.62		550.07		908.35		1898.0		1462.5		1454.0			
ENGINE OIL		OILT		SOILT		OILP		MANIFOLD PRESSURE = 28.135							
		195.04		202.17		73.095									
DYN COND.		TORQUE		RPM		CYL. RACK PRESSURE = 29.414									
		295.79		2644.2											
INDUCTION AIR		IAIRT1		IAIRT2		TAIRT1		TAIRT2							
		49.540		49.896		185.09		45.464							
ORIFICE AIR		TEMP		DELTA P		ORIF		FLOW							
		92.544		3.6821		54.404		2619.6							
OIL TEMP. = 85.104				HEATER TEMP = 90.302				COOLER TEMP = 36.410							

NASA-LEWIS PRELIMINARY DATA 04/23/76 CADDEII REC 04/23/76 14:31:30.024 FAC SEX15 PGM C003 RDG 3687

LEANOUT RE-RUNS TO CL APP 50 DEG HUM = 80 ° MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.270 RATED HP. = 160.00 HC RATIO = 2.1250

CMR. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	49.229	29.276	169.47	787.99	5.1398	14.692

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	73.414	5.4329	44.821	60.112	57.444	6.0630

COOLING AIR	TEMP	INFL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	52.857	2.8600	3.8497	9694.7	88.113	45.365

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	88.113	63.364	45.559	1.0485	120.07

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.072899	0.072427	1.0381	2434.7	2438.0	258.87	120.00

WET CORRECTION F. = 0.85844 EXHAUST MOLF. WT. = 28.267 EXHAUST DENSITY = 0.073189 EXHAUST FLOW RATE = 11621.

MEASURED CONC.	PART PER MILLION WET	HC PPM	NOX PPM	CO DRY	PEP CENT	CO2 DRY
		938.28	1637.6	3.5347	11.741	0.27583
CORRECTED CONC. TO WET BASIS				3.0344	10.079	0.23678

EMISSION RATE	HC	NOX	CO
	0.34974	2.2647	25.602
EMISSION MASS/MODE	0.029145	0.18972	2.1335
EMISSION MASS/RATED HP	0.00018216	0.0011795	0.013334
MODE EMIS./STD. CYCLE %	9.5872	78.635	31.748

CAL. FUEL AIR RATIO = 0.074116 MEAS. FUEL AIR RATIO = 0.072899 DIFF MEAS. & CAL. F/A PERCENT = 1.6685

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	375.34	401.17	394.95	390.38

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	697.59	-199.60	973.19	1955.2	1397.8	1394.2

ENGINE OIL	TEMP	TEMP	TEMP	MANIFOLD PRESSURE
	185.83	342.16	71.583	26.814

DYNO COND.	TEMP	RPM	CYL. BACK PRESSURE
	252.90	2371.6	29.375

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	49.517	49.229	172.29	46.779

ORIFICE AIR	TEMP	DEL TAP	ORIF	FLOW
	92.149	3.6681	54.300	2620.3

CELL TEMP. = 82.775 HEATED TEMP = 97.795 COOLER TEMP = 39.989

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NASA-LEWIS PRELIMINARY DATA 04/23/76 CADDET1 RFC 04/23/76 14:34:38.195 FAC SEX15 PGM C003 RDG 3688

LEANOUT RE-RUNS TO CL APP 50 DEG HUM = 80 % MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.270 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	50.169	29.268	104.92	481.18	3.1185	14.494

COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	75.784	5.5467	44.759	35.591	33.471	6.1095

COOLING AIR	TEMP	MODEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT
	52.511	2.9237	3.7714	9815.4	83.402	45.340

RFL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	83.402	47.619	45.367	1.0418	66.275

ENG. CORR.	F/A DRY	F/A WET	EQV. RATIO	RPM-1	RPM-2	TORQUE	9HP
	0.069561	0.059113	1.0392	2352.6	2355.5	147.72	66.171

WET CORRECTION FACTOR = 0.86096 EXHAUST MOLF. WT. = 29.484 EXHAUST DENSITY = 0.073752 EXHAUST FLOW RATE = 7020.4

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	816.99	1218.1	1.9418	12.456	0.18174
CORRECTED CONC. TO WET BASIS			1.5957	10.724	0.15647

	HC	NOX	CO
EMISSION RATE	0.20591	1.0177	8.0821
EMISSION MASS/MODE	0.020591	0.10176	0.80821
EMISSION MASS/RATED HP	0.00012869	0.00063603	0.0050513
MODE EMIS./STD. CYCLE %	6.7732	42.402	12.027

CAL. FUEL AIR RATIO = 0.070753 MEAS. FUEL AIR RATIO = 0.069561 DIFF MEAS. & CAL. F/A PERCENT = 1.7143

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	327.08	335.98	334.21	338.58

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1339.2	27.507	1122.9	1917.8	1273.9	1276.4

ENGINE OIL	ERTLT	STILT	OILD	MANIFOLD PRESSURE = 18.925
	184.26	356.55	71.527	

DYNO COND.	TORQUE	RPM	CYL. PACK PRESSURE = 29.315
	148.93	2321.0	

INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2
	47.521	50.169	133.94	46.939

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	97.655	3.6472	54.449	2611.7

CYL TEMP. = 83.409 HEATED TEMP = 90.855 COOLER TEMP = 33.464

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NASA-LEWIS		PRELIMINARY DATA		04/23/76	CADDEIT	REC 04/23/76 14:45:30.786	FAC SFX15	PGM C003	RNG 3689
LEANOUT RE-RUNS TO CL APP 50 DEG HUM = 80 %				MODE = 3.0000		NO. SCANS = 5			
ENGINE TIMING = 25.000		NEG.		BAROMETRIC PRESSURE = 29.270		RATED HP. = 160.00		HC RATIO = 2.1250	
COMB. AIR	TEMP 49.558	PRESS 29.258	CFM 205.43	DRY FLOW 968.70	VAPOR FLOW 6.0432	PRESS TOTAL 14.855			
COMB. FUEL	TEMP 74.817	PRESS 5.4104	DENSITY 44.784	TURBO FLOW 73.252	FLOW TRON 70.084	FPIP 6.0507			
COOLING AIR	TEMP 54.211	DBEL-HOOD 2.8744	DEL-HOOD 3.8145	FLOW 9722.1	REL-HUM 84.210	DEW-POINT 44.995			
REL-HUM	1 84.210	2 28.295	HUMIDITY 43.570	* H2O VAPOR CORRECTED HP 1.0029 154.76					
ENG. COND.	F/A DRY 0.072349	F/A WET 0.071900	EQU. RATIO 1.0798	RPM-1 2710.0	RPM-2 2713.8	TORQUE 291.97	BHP 150.65		
WET CORRECTION FACTOR = 0.85394		EXHAUST MOLE WT. = 28.314		EXHAUST DENSITY = 0.073311		EXHAUST FLOW RATE = 14252.			
MEASURED CONC.	PART PER MILLION WET		PER CENT						
	HC PPM 925.09	NOX PPM 992.70	CO DRY 3.4901	CO2 DRY 11.874	O2 DRY 0.15742				
CORRECTED CONC. TO WET BASIS			2.9719	10.139	0.13442				
EMISSION RATE	HC 0.42215	NOX 1.5836	CO 30.749						
EMISSION MASS/MODE	0.0021108	0.0084180	0.15375						
EMISSION MASS/RATED HP	1.3192E-05	5.2615E-05	0.00096092						
MODE EMIS./STD. CYCLE %	0.69433	3.5075	2.2879						
CAL. FUEL AIR RATIO = 0.074344		MEAS. FUEL AIR RATIO = 0.072349		DIFF MEAS. & CAL. F/A PERCENT = 2.7576					
CYL TEMP DEG.F	CYL-1 405.53	CYL-2 422.03	CYL-3 409.22	CYL-4 416.53					
EXT GAS TEMP DEG.F	EXT-1 1931.0	EXT-2 502.77	EXT-3 982.52	EXT-4 1973.9	SEXT-1 1452.3	SEXT-2 1443.7			
ENGINE OIL	FILIT 184.56	STILT 106.71	OILP 73.255	MANIFOLD PRESSURE = 28.219					
DYNO COND.	TORQUE 290.94	RPM 2652.7	CYL. BACK PRESSURE = 29.439						
INDUCTION AIR	TAIRT1 49.229	TAIRT2 49.558	TAIRT1 151.18	TAIRT2 45.515					
ORIFICE AIR	TEMP 92.152	DELTA P 3.6670	ORIF 54.330	FLOW 2615.2					
CELL TEMP. =	84.797	HEATER TEMP = 90.406		COOLER TEMP = 35.864					

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NASA-LEWIS	PPFLIMINARY DATA	04/23/76	CADDEII	REC 04/23/76 14:48:47.702	FAC SEX15	PGM C003	RDG 3690
LEANOUT RE-RUNS TO CL APP 50 DEG HUM = 80 %		MODE = 4.0000		NO. SCANS = 5			
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.270		RATED HP. = 160.00		HC RATIO = 2.1250
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	51.145	29.310	165.52	769.22	4.8848	14.663	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	75.793	5.4473	44.758	57.527	54.329	6.0855	
COOLING AIR	TEMP	DEL-HOOD	DEL-HOOD	FLOW	RFL-HUM	DEW-POINT	
	54.819	2.9441	3.7750	9853.9	79.752	45.115	
PFL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP			
	79.752	72.291	44.452	1.0208 120.23			
ENG. COND.	F/A DRY	F/A WET	F/O. RATIO	PPM-1	PPM-2	TORQUE	BHP
	0.070629	0.070183	1.0542	2431.1	2433.5	259.11	119.94
WET CORRECTION FACTOR = 0.85272		EXHAUST MOLE. WT. = 28.462		EXHAUST DENSITY = 0.073694		EXHAUST FLOW RATE = 11241.	
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	878.29	1460.5	2.9109	12.069	0.14447		
CORRECTED CONC. TO WET BASIS			2.4822	10.292	0.12320		
EMISSION RATE	HC	NOX	CO				
	0.35445	1.9538	20.25%				
EMISSION MASS/MODE	0.029538	0.16282	1.6881				
EMISSION MASS/RATED HP	0.00018461	0.0010176	0.010551				
MODE EMISS./STD. CYCLE %	9.7163	67.841	75.121				
CAL. FUEL AIR RATIO = 0.073206		MEAS. FUEL AIR RATIO = 0.070629		DIFF MEAS. & CAL. F/A PERCENT = 3.6490			
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	389.30	408.11	399.05	409.73			
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	1029.7	102.43	1050.8	1830.4	1399.0	1394.9	
ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 26.638			
	195.97	214.30	71.447				
DYNO COND.	TORQUE	PPH	CYL. BACK PRESSURE = 29.466				
	249.30	2349.6					
INDUCTION AIR	TAIPT1	TAIPT2	TAIPT1	TAIPT2			
	50.534	51.145	126.44	46.183			
SPECIFIC AIR	TEMP	DELTA P	PPH	FLOW			
	92.466	3.6285	54.249	2600.3			
CELL TEMP. = 84.77		HEATER TEMP = 90.475		COOLER TEMP = 37.446			

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MASA-LEWIS	PRELIMINARY DATA	04/23/76	CADDEII	REC 04/23/76 14:53:52.365	FAC SEX15	PGM C003	RDG 3691
LEANOUT PE-RUNS TO CL APP 5C DEG HUM = 80 %		MODE = 5.0000		NO. SCANS = 5			
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.270		RATED HP. = 160.00		HC RATIO = 2.1250
COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	49.530	29.270	119.22	547.76	3.4825	14.524	
COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP	
	75.296	5.5599	44.771	34.530	33.411	6.0693	
COOLING AIR	TEMP	INFL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	51.919	2.8359	3.6889	9648.7	83.976	44.895	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP		
	83.976	39.356	44.504	1.0220	66.288		
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.060996	0.060611	0.91039	2355.8	2359.4	147.67	66.240
WET CORRECTION FACTOR = 0.87371		EXHAUST MOLE WT. = 28.839		EXHAUST DENSITY = 0.074670		EXHAUST FLOW RATE = 7829.8	
MEASURED CONC.	PART PER MILLION WET		PER CENT		3.5 C3		
	HC PPM	NOX PPM	CO DRY	CO2 DRY			
	147.13	1432.8	0.15298	12.400			
CORRECTED CONC. TO WET BASIS			0.13366	10.834	1.5900		
EMISSION RATE		HC	NOX	CO			
		0.041358	1.3350	0.75981			
EMISSION MASS/MODE		0.0041358	0.13350	0.075981			
EMISSION MASS/RATED HP		2.5849E-05	0.00083441	0.00047488			
MODE EMIS./STD. CYCLE %		1.3605	55.627	1.1307			
CAL. FUEL AIR RATIO = 0.061514		MEAS. FUEL AIR RATIO = 0.060996		DIFF MEAS. & CAL. F/A PERCENT = 0.84935			
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	317.05	313.18	340.35	346.70			
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	1652.2	337.70	1211.1	1942.1	1316.0	1313.9	
ENGINE OIL	OIL T	SOIL T	OIL P	MANIFOLD PRESSURE = 20.673			
	193.51	226.17	71.487				
DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.407				
	137.74	2306.1					
INDUCTION AIR	TAIST1	TAIST2	TAIRT1	TAIRT2			
	49.028	49.530	117.15	47.133			
ORIFICE AIR	TEMP	DEL TAP	ORIF	FLOW			
	89.844	3.6777	54.685	2624.4			
COOL TEMP. = 82.354		HEATED TEMP = 95.872		COOLER TEMP = 38.909			

NASA-LEWIS	PRELIMINARY DATA	04/23/76	CADDELL	REC 04/23/76 14:57:35.770	FAC SEX15	PGM C003	RDG 3692
LEANOUT RE-RUNS TO CL APP 50 DEG HUM = 80 %		MODE = 3.0000		NO. SCANS = 5			
ENGINE TIMING = 25.000		DEG.	BAROMETRIC PRESSURE = 29.270		RATED HP. = 160.00		HC RATIO = 2.1250
COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL	
	49.046	29.238	203.49	956.84	6.0891	14.845	
COMP. FUEL	TEMP	PRESS	DENSITY	THRO FLOW	FLOW TRON	FPIP	
	73.369	5.4284	44.922	69.077	66.811	6.0222	
COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT	
	53.566	2.9536	3.7967	9871.6	87.490	45.495	
REL-HUM	1	2	HUMIDITY	% H2O VAPOR CORRECTED HP			
	87.480	15.926	44.546	1.0229 150.58			
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPV-1	RPV-2	TORQUE	BHP
	0.069824	0.069382	1.0421	2697.3	2701.2	285.34	146.54
WET CORRECTION FACTOR = 0.85995		EXHAUST WLF. WT. = 28.458		EXHAUST DENSITY = 0.073683		EXHAUST FLOW RATE = 13975.	
MEASURED CONC.	PART PER MILLION WET		PER CENT				
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY		
	635.38	1090.4	2.2222	12.308	0.23302		
CORRECTED CONC. TO WET BASIS			1.8938	10.585	0.20039		
		HC	NOX	CO			
EMISSION RATE		0.31878	3.3101	19.214			
EMISSION MASS/MODE		0.0015939	0.016551	0.096071			
EMISSION MASS/RATED HP		0.9618E-06	0.00010344	0.00060044			
MODE EMIS./STD. CYCLE %		0.52431	6.8961	1.4296			
CAL. FUEL AIR RATIO = 0.071252		MEAS. FUEL AIR RATIO = 0.069824		DIFF MEAS. & CAL. F/A PERCENT = 2.0452			
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4			
	410.10	422.34	415.76	425.18			
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2	
	1443.2	593.78	1202.5	2024.6	1481.5	1472.8	
ENGINE OIL	FOILT	SOILT	DILT	MANIFOLD PRESSURE = 27.994			
	184.78	90.039	72.911				
DYMC COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.440				
	279.76	2640.6					
INDUCTION AIR	TAIPT1	TAIPT2	TAIPT1	TAIPT2			
	48.507	49.046	83.120	46.499			
ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW			
	90.620	3.6523	54.553	2613.6			
CELL TEMP. = 22.530		HEATER TEMP = 95.989		COOLER TEMP = 30.391			

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NASA-LEWIS PRELIMINARY DATA 04/23/76 CADDEII REC 04/23/76 15:00:59.314 FAC SEX15 PGM C003 RDG 3693

LEANOUT RE-RUNS TO CL APP 50 DEG HUM = 80 % MODE = 4.000C NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.270 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	50.270	29.290	169.05	786.38	5.0204	14.698

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIF
	74.533	5.4503	44.792	56.202	53.120	6.0609

COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	53.839	2.9165	3.7598	9801.8	83.013	45.315

REL-HUM	1	2	HUMIDITY	* H2O VAPOR	CORRECTED HP
	83.013	57.360	44.589	1.0262	120.46

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.067550	0.067121	1.0082	2433.3	2436.1	259.54	120.25

WET CORRECTION FACTOR = 0.96288 EXHAUST MILE. WT. = 28.648 EXHAUST DENSITY = 0.074177 EXHAUST FLOW RATE = 11385.

MEASURED CONC.	PART PER MILLION WET		PER CENT		
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY
	642.44	2237.2	1.1205	12.740	0.25643
CORRECTED CONC. TO WET BASIS			0.96688	10.993	0.22125

	HC	NOX	CO
EMISSION RATE	0.26259	3.0311	7.9920
EMISSION MASS/MODE	0.021882	0.25259	0.66600
EMISSION MASS/RATED HP	0.00013676	0.0015787	0.0041625
MODE EMTS./STD. CYCLE %	7.1981	105.25	9.9107

CAL. FUEL AIR RATIO = 0.069856 MEAS. FUEL AIR RATIO = 0.067550 DIFF MEAS. & CAL. F/A PERCENT = 1.9341

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	387.85	405.08	392.52	388.72

EXT GAS TEMP DEG. F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	1472.7	330.64	1152.9	2078.9	1430.2	1425.1

ENGINE OIL	FOILT	SOILT	OILP	MANIFOLD PRESSURE = 26.850
	135.53	120.10	71.339	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.382
	246.72	2350.1	

INDUCTION AIR	TAIPT1	TAIPT2	TAIRT1	TAIRT2
	47.923	53.270	89.549	46.869

ORIFICE AIR	TEMP	DELTAP	ORIF	FLOW
	40.698	3.6933	54.522	2627.9

CELL TEMP. = 83.703 HEATER TEMP = 91.083 COOL. FR TEMP = 39.236

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NASA-LEWIS PRELIMINARY DATA 04/23/76 CADDF11 REC 04/23/76 15:04:41.292 FAC SEX15 PGM C003 RDG 3694

LEANOUT PE-RUNS TO CL APP 50 DEG HUM = 80 ° MODE = 5.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.270 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	51.373	29.270	122.32	562.53	3.5761	14.539

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	76.988	5.5544	44.727	37.032	34.077	6.0372

COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	53.666	2.8921	3.8287	9755.8	78.497	44.920

PFL-HUM	1	2	HUMIDITY	* H2O VAPOR	CORRECTED HP
	78.497	29.783	44.500	1.0219	66.231

ENG. COND.	F/A DRY	F/A WET	FQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.060579	0.060196	0.90417	2353.9	2357.5	147.33	66.031

WET CORRECTION FACTOR = 0.87683 EXHAUST WLF. WT. = 28.840 EXHAUST DENSITY = 0.074674 EXHAUST FLOW RATE = 8037.3

MEASURED CONC.	PART PER MILLION WET		CO DRY	PER CENT	
	HC PPM	NOX PPM		CO2 DRY	O2 DRY
	99.030	1359.8	0.17940	12.276	2.1096
CORRECTED CONC. TO WET BASIS			0.15730	10.764	1.8498

EMISSION RATE	HC	NOX	CO
	0.028574	1.3006	0.01787
EMISSION MASS/MODE	0.0028574	0.13006	0.001787
EMISSION MASS/RATED HP	1.7859E-05	0.00081288	0.00051367
MODE EMIS./STD. CYCLE %	0.93994	54.192	1.3650

CAL. FUEL AIR RATIO = 0.060654 MEAS. FUEL AIR RATIO = 0.060579 DIFF MEAS. & CAL. F/A PERCENT = 0.12337

CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4
	316.30	316.27	341.09	349.53

EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2
	801.80	389.15	1193.4	1982.8	1333.6	1332.2

ENGINE OIL	OILT	SOILT	OILP	MANIFOLD PRESSURE = 21.218
	183.23	195.53	71.535	

DYNO COND.	TORQUE	RPM	CYL. PACK PRESSURE = 29.355
	143.98	2296.5	

INDUCTION AIR	TAIPT1	TAIPT2	TAIPT1	TAIPT2
	50.853	51.373	99.111	47.198

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	91.230	3.6704	54.483	2618.5

CELL TEMP. = 82.629 HEATER TEMP = 90.516 COOLER TEMP = 38.282

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NASA-LEWIS		PRELIMINARY DATA		04/23/76	CADDEII	REC 04/23/76 15:08:22.366		FAC SEX15	PGM C003	RDG 3695
LEANOUT RE-RUNS TO CL APP 50 DEG HUM = 80 %				MODE = 3.0000		N7. SCANS = 5				
ENGINE TIMING = 25.000		DEG.		BAROMETRIC PRESSURE = 29.270		RATED HP. = 160.00		HC RATIO = 2.1250		
COMP. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL				
	50.215	29.290	202.75	953.62	6.0383	14.835				
COMP. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW FROM	FPIP				
	75.154	5.4260	44.775	71.055	67.873	6.0945				
COOLING AIR	TEMP	INLET-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT				
	54.638	2.9815	3.8240	9923.9	83.276	45.345				
REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP					
	83.276	12.681	44.324	1.0178	148.67					
ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP			
	0.071174	0.070726	1.0523	2694.6	2698.5	282.09	144.73			
WET CORRECTION FACTOR = 0.95697		EXHAUST MOLE. WT. = 29.414		EXHAUST DENSITY = 0.073572		EXHAUST FLOW RATE = 13966.				
MEASURED CONC.	PART PER MILLION WET		PER CENT							
	HC PPM	NOX PPM	CO DRY	CO2 DRY	O2 DRY					
	635.30	1996.6	2.1869	12.300	0.26639					
CORRECTED CONC. TO WET BASIS			1.8960	10.664	0.23095					
EMISSION RATE	HC	NOX	CO							
	0.31853	3.3183	19.225							
EMISSION MASS/MODE	0.0015927		0.016592							
EMISSION MASS/RATED HP	9.9542E-06		0.00010370							
MODE EMIS./STD. CYCLE %	0.52390		6.9132							
			1.4304							
CAL. FUEL AIR RATIO = 0.071108		MEAS. FUEL AIR RATIO = 0.071174		DIFF MEAS. & CAL. F/A PERCENT = -0.093124						
CYL TEMP DEG.F	CYL-1	CYL-2	CYL-3	CYL-4						
	400.44	417.04	414.09	409.89						
EXT GAS TEMP DEG.F	EXT-1	EXT-2	EXT-3	EXT-4	SEXT-1	SEXT-2				
	1291.7	620.82	1299.4	2048.5	1479.1	1470.5				
ENGINE OIL	OIL1	OIL2	OILP	MANIFOLD PRESSURE = 27.825						
	183.13	249.36	72.787							
DYMO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.444							
	282.44	2652.4								
INDUCTION AIR	TAIRT1	TAIRT2	TAIRT1	TAIRT2						
	49.740	50.215	77.581	46.027						
CRIFICE AIR	TEMP	DELTA P	PREF	FLOW						
	91.961	3.6782	54.446	2619.6						
CELL TEMP. = 84.481	HEATER TEMP = 90.440		COOLER TEMP = 37.091							

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NASA-LEWIS PRELIMINARY DATA 04/23/76 CADDEII REC 04/23/76 15:12:52.956 FAC SEX15 PGM C003 RDG 3696

LEANOUT RE-RUNS TO CL APP 50 DEG HUM = 80 % MODE = 4.0000 NO. SCANS = 5

ENGINE TIMING = 25.000 DEG. BAROMETRIC PRESSURE = 29.270 RATED HP. = 160.00 HC RATIO = 2.1250

COMB. AIR	TEMP	PRESS	CFM	DRY FLOW	VAPOR FLOW	PRESS TOTAL
	49.457	29.265	168.87	785.99	4.9965	14.682

COMB. FUEL	TEMP	PRESS	DENSITY	TURBO FLOW	FLOW TRON	FPIP
	74.746	5.4518	44.786	54.257	52.847	6.0756

COOLING AIR	TEMP	UDEL-HOOD	DEL-HOOD	FLOW	REL-HUM	DEW-POINT
	53.102	2.9882	3.8768	9936.2	85.107	45.175

REL-HUM	1	2	HUMIDITY	% H2O VAPOR	CORRECTED HP
	85.107	36.546	44.499	1.0218	120.17

ENG. COND.	F/A DRY	F/A WET	EQU. RATIO	RPM-1	RPM-2	TORQUE	BHP
	0.067236	0.066812	1.0035	2431.3	2434.0	259.38	120.08

WET CORRECTION FACTOR = 0.85265 EXHAUST MOLE. WT. = 28.658 EXHAUST DENSITY = 0.074228 EXHAUST FLOW RATE = 11368.

MEASURED CONC.	PART PER MILLION WET	PER CENT
HC PPM	NOX PPM	CO DRY
639.60	2193.7	1.1378
CORRECTED CONC. TO WET BASIS		0.98152
		10.919
		0.27036

EMISSION RATE	HC	NOX	CO
EMISSION MASS/MODE	0.26103	2.9677	8.1007
EMISSION MASS/RATED HP	0.021753	0.24731	0.67506
MODE EMIS./STD. CYCLE %	0.00013595	0.0015457	0.0042191
	7.1555	103.04	10.046

CAL. FUEL AIR RATIO = 0.068713 MEAS. FUEL AIR RATIO = 0.067236 DIFF MEAS. & CAL. F/A PERCENT = 2.1967

CYL TEMP DEG. F	CYL-1	CYL-2	CYL-3	CYL-4
	386.20	401.20	396.03	395.42

FXT GAS TEMP DEG. F	FXT-1	FXT-2	FXT-3	FXT-4	SEXT-1	SEXT-2
	1144.0	420.78	1263.9	1972.8	1431.7	1427.0

ENGINE OIL	EOILT	SOILT	OILP	MANIFOLD PRESSURE = 26.860
	185.56	179.93	71.559	

DYNO COND.	TORQUE	RPM	CYL. BACK PRESSURE = 29.498
	255.15	2347.9	

INDUCTION AIR	IAIRT1	IAIRT2	TAIRT1	TAIRT2
	49.001	49.457	59.532	46.049

ORIFICE AIR	TEMP	DELTA P	ORIF	FLOW
	91.256	3.6859	54.485	2624.0

CELL TEMP. = 93.214 HEATER TEMP = 90.468 COOLER TEMP = 36.710

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